

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 2, p.4 (of IISG report)		Carcass detection and identification	IUCN to take initiative in seeking cooperation with Japan to obtain photos and genetic samples from three gray whales that were killed in Japan in 2005.	IUCN	This is a matter for IUCN to follow up. SEIC would be willing to provide support if requested by IUCN to do so.		Closed - superseded by a new recommendation
C. IISG	Item 27, p.12 (of IISG report)		Carcass detection and identification	In relation to whale carcasses it is recommended that any dead animal be towed ashore for complete necropsy, regardless of state of decomposition and the time it will take. Broken bones can be detected in rotting carcasses.	SEIC	SEIC considers that this is useful, but technically difficult to achieve (i.e. largely unpopulated coastline, difficult access from land and only a couple of port landings along the East Sakhalin coast). ACTION: Assess the feasibility of implementing this recommendation with regard to the practicality to deploy the right equipment, especially at remote locations.	End 2006	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
D. GWGAP 1	GWGAP 1/010	GWGAP 1/3 - Section 8.0	Carcass detection and identification	The Panel <b>recommends</b> that the northern areas should be surveyed by helicopter monthly during the open-water season. Although these areas may be observed by research groups as they move into and out of the region, ground vehicles are not sufficient for complete coverage because the beach zone is not always visible from the road.	SEIC	Will be implemented in 2007	Nov-07	Closed - superseded by a new recommendation
F. GWGAP 2	GWGAP 2/004	GWGAP 2/3 Section 5	Carcass detection and identification	The Panel recommends that surveys for stranded gray whale carcasses be conducted according to the following specifications: - Flight (ground) speed: 80-100 knots (148-185 km/hr). - Flight altitude: 1500 ft (450m). Although this is above the optimal height, it should preclude serious disturbance to near-shore living whales as well as nesting birds and hauled-out pinnipeds. The smallest gray whales expected during summer and autumn in this region would be 6-7m long and they should be at least moderately detectable from 450m. - Flight path: Where the terrain permits, a flight path along the land-side (ca. ¼ mi [0.4km] from the beach) is preferred. However, it is essential that the beach be kept in sight and therefore in areas such as the Piltun feeding ground, where dunes, hills and cliffs might obscure a high-and-dry carcass, it may be necessary to fly directly along, or just offshore from, the waterline. In this circumstance, it will be especially important to avoid sharp turns and rapid changes in power that cause more sound to enter the water. - Flight coverage and regularity: T	SEIC	Currently, SEIC has planned the following beach carcass surveys for the period May-November 2007: - Continuation of the daily surveys using existing crew change flights; - Monthly dedicated beach carcass helicopter surveys with two MMOs, covering the northeast side of Sakhalin from Nogliki to Okha (frequency as in recommendation GWGAP 1/10, GWGAP-1 meeting Prangins, November 2006). The flight speed, altitude and path of the dedicated monthly surveys will followed according to this recommendation. SEIC will investigate possibility of carrying out the Island length surveys but are currently limited by availability of aircraft.	30-Nov-07	Closed - implemented/resolved satisfactorily
F. GWGAP 2	GWGAP 2/005	GWGAP 2/3 Section 5	Carcass detection and identification	The Panel recommends that Sakhalin Energy develops, in consultation with appropriate experts, a list of data and samples to be collected from gray whale carcasses, and an associated protocol for such collection. The protocol will need to incorporate, inter alia, consideration for the state of the carcass and the level of experience of available personnel.	SEIC	In case a stranded gray whale is observed, SEIC is legally obliged to cooperate with the relevant Russian authorities and their specialists that include veterinarians to conduct or consult on the necropsy. A gray whale necropsy form was implemented in SEICs Marine Mammal Protection Plan in 2006. This form lists the necessary information and was provided by an expert proposed by the panel. SEIC will review this from in the light of the Panel's comments.	30-Sep-07	Open - in progress
H. GWGAP 4	GWGAP 4/003	GWGAP 4/4 - Section 5.3	Carcass detection and identification	The Panel <b>recommends</b> that SEIC arrange for section 5 of the Pugliars <i>et al.</i> (2007) necropsy manual to be translated into Russian and made available to any company staff and others in the region who are likely to be involved in response to strandings along the Sakhalin coast.	SEIC	Translation has been completed and, pending clarification on copyright, will be made available to Russian authorities who may be involved in response to strandings.	Jul-08	Closed - implemented/resolved satisfactorily

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H. WGWP 4	WGWP 4/004	WGWP 4/4 - Section 5.3	Carcass detection and identification	The Panel <b>requests</b> that SEIC report back at the next WGWP meeting on the outcome of its request to Russian authorities for authorisation to collect tissue samples from stranded whales.	SEIC	SEIC will report back to the Panel on its relevant communications with the Russian authorities.	Dec-08	Closed - implemented/resolved satisfactorily
H. WGWP 4	WGWP 4/005	WGWP 4/4 - Section 5.3	Carcass detection and identification	The Panel <b>recommends</b> that SEIC obtain three necropsy kits and ensure their availability at strategic points on Sakhalin Island.	SEIC	Prior to making a final decision, SEIC would like more information from the WGWP on the contents and costs of such kits.	May-09	Open - in need of clarification/expansion
A. ISRP	ISRP Report, p. 115		Continuous noise	After reviewing SEIC's methods and plans for modelling noise in gray whale habitats, three areas of concern were identified: (1) measurement accuracy and reliance on noise spectra, (2) source level determinations and (3) use of a modified Range-dependent Acoustic Model (RAM).		All concerns are addressed in the document "Acoustic Model Validation". Details of monitoring protocol are provided in "Guidelines for measurements of Underwater Acoustic Source Levels". These two documents address the main concerns.	Apr-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 30		Continuous noise	Studies of short-term behavioural responses to underwater noise associated with aircraft, ships and seismic survey operations indicate that there is a probability of 0.5 that whales will respond to continuous broadband noise when received sound levels (RL) exceed ca. 120dB and to intermittent noise when levels exceed ca 170 dB.		SEIC notes that the criterion used (>120 dB) is based on observations of gray whale responses to industrial sounds of types not greatly different from those occurring during planned activities. It is not likely that reactions to a given received level of construction sound would be greatly different from those previously documented. However, slightly greater responsiveness to a particular received level might be predicted given that dredging and pipelaying are likely to produce tones at numerous frequencies, superimposed on the broadband sound.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 31		Continuous noise	Although no hearing threshold audiograms were available, ear structure and behavioural responses to industrial noise strongly suggest that gray whales hear well in the low frequencies (<2kHz) of noise generated by ships and construction activities. Underwater noise from industrial activities can mask communication signals among whales, or other important signals that whales may obtain through listening (passively) to their environment.		Masking of communication sounds is not much of a concern on the feeding grounds, where gray whales do not call much.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 34		Continuous noise	The monitoring and mitigation component of the CEA (Section 4.6.6) mentions 'establishment of "shut-down" criteria in the event that the real-time noise monitoring programme indicates noise levels and impacts on the whales near the Piltun feeding area that are higher than predicted, and considered unacceptable.' However, unacceptability remains undefined. Throughout the document there is a lack of measurable criteria for action. It is thus extremely difficult to evaluate the efficacy of the monitoring and mitigation measures provided.		Noise criteria in CEA are developed to predict impact. Noise criteria in the field need to be developed based on real time observations and will be different. SEIC considers "action criteria" that are measurable in real time part of risk management. Evaluation of the actual impact on WGWP is yet another step that requires thorough analysis of monitoring data gathered at the time of operations. The flow of information to the relevant specialists required to be involved in the decision making process is defined in the Marine Mammal Protection Plan.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 35		Continuous noise	Scheduling activities to avoid co-occurrence with feeding gray whales and mother-cal pairs would reduce noise impacts.		Considering the nature of the work complete avoidance of WGWP feeding season is not possible.	Closed	Closed - implemented/resolved satisfactorily

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A. ISRP	ISRP Report, p. 35		Continuous noise	Methods to partially mitigate the effects of noise on marine mammals include: (3) removal or quieting of equipment.		SEIC is aware that noise mitigation of the source is time consuming and not always possible because of other commitments of the vessels	Ongoing	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 35		Continuous noise	Methods to partially mitigate the effects of noise on marine mammals include: (1) avoidance of critical habitat.		SEIC agrees that avoidance of critical habitat is an effective mitigation method.	Apr-05	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 35		Continuous noise	Bubble screens (or curtains) have been considered as means of mitigating against noise by a number of authors. The mechanism of sound propagation through bubble screens, however, is not fully understood.		Bubble curtains can be effective and are worth while in considering reduction of noise, although it surely has some limitations. An overview of bubble curtains effectiveness and its limitations are given in SEIC's Noise Mitigation Strategy document.	Ongoing	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
A. ISRP	ISRP Report, p. 35		Continuous noise	The use of 'ramp-up' (also known as 'soft-start') procedures is mentioned as a potential mitigation strategy, specifically for seismic survey operations (e.g. air guns). Although this is the industry-standard mitigation measure (JNCC 2004), there is ongoing discussion about its effectiveness and the level of safety that it provides for marine mammals.		SEIC has re-evaluated the use of "ramp-up" or "soft start" procedures. These are mainly related to pulsed sounds and noise from offshore pipeline construction and platform installation is vessel related. No information exists on PTS from vessel related noise.	None	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
A. ISRP	ISRP Report, p. 37		Continuous noise	Key requirements for an improved appraisal of the effects of noise on GWG off Sakhalin include obtaining better (quantitative where possible) information on 3. Behavioural and physiological responses of GWG to noise.		SEIC agrees that it would be good to know whether stress is an issue. However, this has not been studied or documented in any baleen whale. The western gray whale may not be the population in which one should try to develop such an innovative methodology.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 37		Continuous noise	Key requirements for an improved appraisal of the effects of noise on GWG off Sakhalin include obtaining better (quantitative where possible) information on 4. gray whale hearing abilities.		The main question is not (or should not be) what gray whales hear; rather, the main question in this area is how, and in what circumstances, they are affected. There is much evidence that gray and other whales often do not react (at least overtly) to sounds that are audible as long as the sound source is not directly approaching the whale or otherwise "threatening".	May-05	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
A. ISRP	ISRP Report, p. 37		Continuous noise	In summary, there are two critical scientific information gaps related to the noise field that western gray whales experience from multiple sources: (1) inability to accurately model and predict received levels from multiple (or single noise sources in shallow-water environments, and (2) uncertainty regarding what aspects of the noise signal (e.g. the saliency of the signal) would be disturbing to a gray whale.		(1) Through the validation document of the acoustic model SEIC believes that the modelled RL from multiple sources is accurate enough to do predictions on the RL from construction activities (2) This second concern is difficult to assess under field conditions as a lot of factors will influence the reaction of the whale. SEIC feels that the available data on gray whale responses that come from tests with sounds similar to the construction sounds, are representative enough to do predictions on gray whale reactions.	May-05	Closed - superseded by a new recommendation

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A. ISRP	ISRP Report, p. 37		Continuous noise	Key requirements for an improved appraisal of the effects of noise on WGW off Sakhalin include obtaining better (quantitative where possible) information on 1. Transmission of noise through WGW habitats.		SEIC has, through acoustic monitoring, sufficient information on TL characteristics in WGW habitat. A literature review study has been conducted to obtain all available information on hearing availability of WGW, EGW and other baleen species.	May-05	Open - in progress
A. ISRP	ISRP Report, p. 38		Continuous noise	Noise from the Sakhalin II Project may: (1) cause hearing loss (TTS or PTS) in, or mask sounds important to, gray whales, (2) cause temporary or permanent displacement of gray whales from their prime feeding habitat off Sakhalin Island, (3) cause stress to gray whales that remain in a noisy habitat in order to feed.		SEIC feels this to be unlikely; whales are not likely to enter or remain for long in an area where the sound level is so high as to cause TTS or (especially) PTS.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 98		Continuous noise	The Panel's review identified the following general areas of future research: Real-time monitoring of behaviour and (if possible) physiological responses by the whales during periods when levels of underwater noise increase noticeably (e.g. during construction and seismic surveys).		Real time acoustic monitoring will be conducted, also acoustic monitoring for a wide range of Hz in relation with behavioural observations. Physiological responses are difficult to measure in real time under field conditions.	May-05	Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 2.1		Continuous noise	Significant uncertainties have been identified with regard to modeling of received noise levels. SEIC issued a document on noise verification and made a presentation on this topic at the Gland meeting, but a formal discussion of adequacy was not held at either the Gland workshop or during the noise teleconference. Experts' written response to Marine Mammal Protection Plan 2005 includes large concern over the accuracy of SL measurements and monitoring.	SEIC	Additional validation has been undertaken since the CEA (4). A presentation in Gland and explanation from JASCO demonstrated the robustness of measurements and the validity of the model. SEIC has undertaken field monitoring (19) of the LUN-A platform for extra verification of the noise footprint prediction and monitoring of the PA-B installation (July / early August). The LUN-A analyses (19) demonstrate that the model is highly accurate and slightly conservative in its predictions. All required independent expertise was not available at Gland, so discussion on this issue has proceeded with the independent scientists through a series of teleconferences. Based on all materials presented the accuracy of the model has been largely accepted. Noise monitoring during the PA-B installation (9) demonstrated that noise levels were within the levels anticipated. (REFS: 4, 19, 9). Preliminary data from the PA-B installation will be available for review in September in the form of a short summary report. A technical noise monitoring report of the CGBS installatio		Open - in progress

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B. Lenders	Vancouver I workshop report, issues table 3.1		Continuous noise	Assessment of PA-B construction noise has not been substantiated. (See also Issue 5.1 below.) CGBS will be installed in 2005; noise from installation of scour protection is a particular concern. A question was raised during the Gland workshop regarding whether this work could be delayed until after the 'peak' season (from October to November).	SEIC	Noise footprint prediction of scour protection placement at the PA-B location, based on modeling results, was presented at Gland and showed low levels of noise. The LUN-A was installed in early July and noise monitoring was undertaken (19). Lessons learned from the LUN-A were applied to PA-B installation (July / early August). These results and the mitigation approach for PA-B were discussed during a noise teleconference on July 24. Both noise measurements of the scour protection at LUN-A and PA-B CGBS showed that these are very close to modeled levels and remain below the noise levels that are considered to be a concern for the WGWs. The schedule of the PA-B platform installation late July was based on a combination of best environmental conditions (after ice season and before the stormy season) and before highest densities of whales (in August and September). Scour protection of the PA-B platform needed to start within 3 days of installation to avoid being hampered by sea current action. Delay to October was therefore not possible. SEIC has planned its construction activi		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 3.2		Continuous noise	Impacts to WGW from noise may be determined by frequency and other features of noise as well as received levels (RL; see also issue 4.1 regarding Gland workshop and noise teleconference). Discussions suggested that action criteria based on just RL are not adequate.		Frequency has not been included in the Action Criteria. This can be discussed in the specific noise teleconferences. Action criteria and related discussions on whale behavior were discussed during the noise teleconferences and further communication with experts is in process. Frequency components of the noise will be analysed in the post-season reports. SEIC agree that monitoring of whale behavior and distribution and various characteristics of received sounds is needed for purposes of both assessing and predicting impacts. Such monitoring was conducted during the 2005 construction period and is planned for 2006.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

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B. Lenders	Vancouver I workshop report, issues table 3.3		Continuous noise	Mechanisms are needed to address uncertainties regarding potential for: - TTS/PTS, - masking, - temporary/permanent displacement; - stress impacts and - long-term or cumulative effects from exposure to noise.	SEIC	SEIC considers that for continuous noise sources and expected received levels in the feeding area from vessel related activities, TTS/PTS is not likely to occur because of the temporary nature of, and the noise levels generated by, the operation. SEIC's position is that we have designed noise levels to minimise the likelihood of stress and therefore this is inherent within our mitigation measures. Ongoing WGW monitoring will address some of the long-term issues. Is noise exposure and related potentials such as TTS/PTS, temporary or permanent displacement, or stress impacts still considered an issue? We accept that this issue should be deferred to the WGWAP.		Open - in need of clarification/expansion
B. Lenders	Vancouver I workshop report, issues table 3.4		Continuous noise	The number of WGW affected by noise may be underestimated. Assessment of the nature of effects and the number of whales affected is necessary to determine when oil and gas-related noise is unacceptable.	SEIC	This issue relates to the noise impact criterion "number of whales potentially affected", stated in the CEA. Estimates are based on a large set of data and sophisticated density calculations. These distribution data show that WGW are continuously moving within and between the feeding area. Although density calculations give a good estimate of the numbers of WGW expected in the ensonified area, it remains difficult to determine the actual numbers affected as large part of the movements is contributed to normal movement patterns. SEIC will conduct post analysis of the data collected in the field during the 2005 construction season. Behavioural observations of individual whales will be related to received noise levels at the location where the whale was observed. The acoustic model will be used to estimate noise levels at different parts in the feeding area using actual noise level measurements from the buoys. SEIC accepts that the issue should go to the WGWAP.		Closed - superseded by a new recommendation

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B. Lenders	Vancouver I workshop report, issues table 3.5		Continuous noise	Experts have questioned the utility of studies on migrating whales for protecting gray whales in their feeding grounds. They have raised concerns stemming from the nature of the noise (e.g. continuous versus pulsed or transient). They also have raised questions about the mechanism for SEIC's approach is consistent with that used by Malme, Würsig, Bird and Tyack (1986, BBN Rep. 6265), which is the best available literature on the subject for feeding gray whales. Malme et al. (1986, pages. 3-133 and 3-134) used information from migrating gray whales to make conclusions about noise impacts on feeding gray whales changing mitigation measures without more complete review.	SEIC	Some literature suggests that the reactions of migrating whales to noise may be greater than that of feeding whales. This issue was discussed in the noise teleconference and the points made were considered in the noise management strategy. In the noise teleconferences, a major concern related to behavioural reaction was transient noises. This was addressed in updated noise criteria, which were emailed to experts on July 1st. The noise criteria have since been updated based on a proposed criteria submitted by one of the panel members and were further discussed during the teleconference on 24 July (8). Details on the revised action criteria are in item 4.1. Changes in mitigation measures have taken place if this was considered appropriate only after a careful review of the data available and after consultation with experts. The use of mitigation measures is closely tracked in the field and all instances of their implementation are recorded (8). SEIC receives daily reports from the field and can modify mitigation measures if necessary. (REFS: 8). The post-field se		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 3.6		Continuous noise	SEIC raised its noise threshold from 120 dB to a 4-hour average of 140 dB based on studies of migrating gray whales. Among other things, this change has not been demonstrated as consistent with ALARP. The basis for this change has not been explained and some experts raised the need for more objective, transparent risk assessment in their written response to documents received prior to Gland.	SEIC	The criteria in the CEA that were used in the planning and design stage defined acceptability as <5 individual WGWs potentially avoiding the part of the feeding area ensounded by levels of >120dB. This automatically implies that the noise levels measured at the edge of the feeding area can exceed 120 dB and still be considered acceptable. The criteria proposed at Gland are action criteria to be applied in the field situation and SEIC has modified the original proposed field action criteria presented in Gland following further discussions with scientists during various teleconferences (8). The amended criteria are outlined below in 4.1. It should be noted that these noise action criteria and monitoring protocol were designed to determine if the predicted impact in terms of a noise footprint of >120 dB in the feeding area and associated potential numbers of whales avoiding were as measured. Noise monitoring results of the PA-BCGBS showed that measured noise levels were as modeled during the planning phase. (REFS: 8, 29b). The post-field season data analyses of the P		Closed - superseded by a new recommendation

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B. Lenders	Vancouver I workshop report, issues table 3.7		Continuous noise	Need to obtain better information on GWG hearing abilities.	SEIC	No changes to CEA. This is a larger issue for the IUCN and any Cooperative Review Body. SEIC accept that the issue will go to the WGAP.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 3.8		Continuous noise	It is critical to learn as much as possible from this exposure of gray whales to noise during this 2005 summer. Among other things, noise levels must be monitored continuously on the periphery of the feeding grounds, and corresponding whale behaviour must be documented. The results should be made publicly available so that the scientific value of this "experiment" can be maximized in terms of what we learn about noise impacts. At the end of the season a full report should be published on what mitigation measures, if any, were taken during the construction season in response to measured noise levels, how these were implemented and any relevant experience gained from their implementation.	SEIC	SEIC has developed a comprehensive monitoring programme to assess all potential impacts and will conduct a full analysis of the data following completion of the field season. Noise has been measured in real time during both the LUN-A and PA-B installations. (REFS: 8, 9, 19, 29b). Full analyses of all data collected will be conducted after the field season and the reports will be made public. SEIC accept that this issue is subsumed in 3.4 and 3.6.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 4.1		Continuous noise	Real-time monitoring of GWG behavioral and physiological response to underwater noise (p. 93) is essential to indicate when noise levels are excessive. SEIC developed further criteria in the Marine Mammal Protection Plan 2005. Nonetheless, concerns were raised during noise teleconference regarding: - appropriateness of proposed RL levels, especially 140dB shutdown criteria; - adequacy of Tyack work for identification of the level at which GWG are disturbed (e.g. feeding vs. migration and transient vs. continuous source); - lack of consideration of frequency spectra and other characteristics of the noise; - lack of use of behavioral-based criteria; and - uncertainty regarding the proposed monitoring would lead to real-time feedback and modification of project actions when necessary. An alternative proposal was developed by A. Vedenev (awaiting SEIC response plus comments of other experts) and a subsequent teleconference resulted in an agreement to investigate possible behavioral response criteria. Specific action points need to be clarified (including, as appropriate, an indication of whether the action points are b	SEIC	As described in Annex 3 (8, 29b) of the Marine Mammal Protection Plan 2005 (dated 29 July 2005), noise action criteria are based on received levels at the perimeter of the feeding ground. The placement of the buoys was chosen in such a manner that it would enable calculation of the actual footprint of 120 dB in the feeding area using the acoustic model (post field season). As for the criteria that were used to enable immediate action in the field, two sets of criteria and associated actions have been defined to address respectively the high-level transient noises of a few minutes duration (1) and moderate noise levels produced by continuous operations lasting several hours to several days (2). The criteria are: 1. Three consecutive 1.0-hour intervals of average integrated noise level exceeding 130 dB will initiate action to mitigate noise emissions. Process leading to action under criterion #1: a) The first 1.0-hour average of integrated noise level exceeding 130 dB leads to an investigative action to determine the location and possible cause of the noise		Closed - superseded by a new recommendation

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B. Lenders	Vancouver I workshop report, issues table 5.1		Continuous noise	The action criteria have not been defined with sufficient specificity and "acceptable" responses have not been adequately defined. Without such specificity regarding when actions will be taken and what types of responses are acceptable, it is not possible to judge whether the oil and gas-related activities will be sufficiently responsive to the needs of WGWs. Mitigation measures through temporal separation may not be adequate if and when "peak" seasons can be redefined without adequate justification. After the ISRP review but prior to the Gland workshop, SEIC revised their definitions of seasons used to provide the most separation in time. The revisions effectively shortened the peak season at both ends with the end result being the potential for more overlap between presence of whales and noise-generating activities. SEIC justified the change of season by referring to data on arrival and departure times of whales in the area. No actual data were provided for review, but descriptions of those data at Gland suggested that they were limited to a single year. Such limited data are inadequate for that purpose.	SEIC	Seasons are now defined Marine Mammal Protection Plan (2005) as follows (these are changed from previous version of WGW Protection Plan): Off season - December to April; Early season - May to June; Peak season - July to September; and Late season - October to November. During the development of the 2003 Protection Plan there was less information available regarding whale distribution and abundance. The new season definitions were updated based on continuing analysis of all presently available distribution and abundance data. (REFS: 8, 29b). For information: the extension of the early and late season has no implication for the mitigation measures as all measures apply during the whole summer season; - the extension of the seasons does not result in an increase in overlap between presence of activities and whales as the total duration of construction activities remain the same. It does, however, encourage the operators to schedule noisy activities in June or October as during these months less whales are present than during July-Sept. The distribution maps will be updated.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 6.1		Continuous noise	Additional methods are needed to mitigate the effects of noise - e.g. avoiding critical habitats. Selection of alternative 1 pipeline route maximizes the spatial separation within the context of the 3 options assessed. The location of the PA-B location was raised as a related issue (addressed below).	SEIC	Selection of Alternative 1 for the pipeline route avoids passing directly through the western gray whale feeding ground. The selection of the PA-B position is explained in two main supporting documents--see Issue 17.1 for details. (REFS: 13, 25)		Closed - implemented/resolved satisfactorily
B. Lenders	Vancouver I workshop report, issues table 6.2		Continuous noise	Additional methods are needed to mitigate the effects of noise - e.g. removal or quieting of equipment. Written response from Experts to Marine Mammal Protection Plan 2005 prior to Gland also questioned adequacy of helicopter measures - height restriction alone not enough.	SEIC	The 2005 Marine Mammal Protection Plan provides guidelines for all aircraft (minimum altitude of 450 m over Piltun feeding grounds (except where safety concerns dictate otherwise). Information on the impacts of helicopters on whales suggests that it will not be a problem at these altitudes particularly since overflights will rarely occur. (REFS: 8). SEIC accepts that this issue will go to the WGWAP.		Closed - implemented/resolved satisfactorily
B. Lenders	Vancouver I workshop report, issues table 6.3		Continuous noise	The effectiveness of ramp-up procedures was questioned because the benefits are hypothetical and have not been demonstrated.	SEIC	Ramp-up acknowledged by SEIC as of limited applicability to construction activities. SEIC accepts that this issue will go to the WGWAP.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 6.4		Continuous noise	The benefits of mitigation through use of bubble screens was questioned by the experts, who stated that bubble screens are not effective (in response to SEIC issue Table distributed prior to Gland).	SEIC	No change to Gland position. (REFS: 8). Effectiveness of this technique may be assessed in the field if employed and through function of the Collaborative Review Body.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

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B. Lenders	Vancouver I workshop report, issues table 8.1		Continuous noise	The need for real-time monitoring of whale responses to noise is addressed elsewhere. Such monitoring will not necessarily reveal the full extent of their responses, which may include behavioral and physiological changes which are too subtle to detect with existing monitoring methods over short periods of time, but still significant with regard to the well-being of the animals. In general, then, there is a need for a more comprehensive understanding of behavioral and physiological responses of VWG to noise.		This is an area of research to be covered under the range state wide advisory body as envisaged as a follow-up to the Gland workshop. In the period before this body exists SEIC intends to sponsor such a workshop on an annual basis. Need for longer-term assessment of dose-response relationship. This issue may be addressed under the function of the advisory body. SEIC accepts that this issue will go to the GWWAP.		Closed - superseded by a new recommendation
C. IISG	Item 39, p.18 (of IISG report)		Continuous noise	Instead of hourly averages, useful information would include a larger set of statistical properties of the signal, including: • The maximum 3-minute Leq during the hour; • The 90th percentile; • The hourly Leq; • The 50th percentile; and • The 10th percentile.	SEIC- - JASCO - POI	Acoustic reports related to the CGBS installation presented a large set of statistical properties as recommended. They did not provide the 10th percentile. <b>ACTION:</b> The 10th percentile will be included in reports of the 2006 season.	Early 2007	Closed - implemented/resolved satisfactorily
C. IISG	Item 40, p.18 (of IISG report)		Continuous noise	The acoustic footprints used for the calculations of effect on whales were standardized to 10 meters depth. Such standardization does not represent the effects of the surface and bottom, which is where the whales are most frequently found. Surface and bottom levels should be reflected in the acoustic footprints.	SEIC	10 m depth was used as a standard because most whales, and especially mother/calf pairs, are known to feed in shallow water around the 10m depth mark. It is considered to be conservative as the sound levels at 10 m depth are in general higher than at the bottom. <b>ACTION:</b> SEIC will develop some examples to demonstrate the validity of using 10 m as a standard for calculating the acoustic footprint.	Jun-06	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 41.1, p.20 (of IISG report)		Continuous noise	The IISG accepts the Sakhalin Energy proposal to control noise exposure on the feeding grounds on the understanding that corrective actions will be triggered using the following procedures, which assume that the 'monitoring buoys' are placed at the edge of the feeding area, i.e., between the whales and the noise sources: 1. Corrective actions will be triggered by continuous received levels at monitoring buoy(s) in excess of 120 dB re 1 µPa for four hours.	SEIC	SEIC confirms that the acoustic buoys will be placed at the edge of the feeding area between the whales and sound sources. With regard to the noise exposure control: 1) Corrective action to be taken at received levels of 120 dB re 1µPa for 4 continuous hours, will very likely result in a substantial decrease in progress of pipeline construction activities, which will make it impossible to finish construction in one season. These duration criteria are likely based on exposure to an individual whale. However, whales are not fixed in one point but are continuously moving in search for food. In case they do remain in one specific area for 4 hours or more, the levels of noise that they receive are unlikely to be sufficient to elicit an avoidance reaction. <b>ACTION:</b> Criteria to be discussed with scientists.	Jun-06	Closed - superseded by a new recommendation
C. IISG	Item 42.2, p.20 (of IISG report)		Continuous noise	Above this level, exposures up to 140 dB re 1 µPa will be permitted but must be reduced in duration by one-half for each doubling of duration (Table 1).	SEIC	SEIC confirms implementation of the criteria recommended under point 2) (1/m 5).		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 42.3, p.20 (of IISG report)		Continuous noise	3. In Document 8, Sakhalin Energy specifies an additional triggering criterion of up to three consecutive 30-minute intervals with received average levels at monitoring buoy(s) of 130 dB re 1 µPa or greater; this criterion falls within the 5-dB doubling relation the IISG has recommended.	SEIC	SEIC confirms implementation of the criteria recommended under point 2) t/m 5).		Closed - superseded by a new recommendation
C. IISG	Item 42.4, p.20 (of IISG report)		Continuous noise	4. In Document 8, Sakhalin Energy specifies that any five 3 minute intervals in a 1-hour period with received average levels at the monitoring buoys in excess of 140 dB re 1 µPa will trigger actions; this criterion falls within the 5-dB doubling relation as well.	SEIC	SEIC confirms implementation of the criteria recommended under point 2) t/m 5).		Closed - superseded by a new recommendation
C. IISG	Item 42.5, p.20 (of IISG report)		Continuous noise	5. Actions always will be triggered when exposures at buoys or estimated at the whales if the average level exceeds 140 dB re 1 µPa for more than 15 minutes, and received noise of 146 dB (RMS) will also trigger immediate action.	SEIC	SEIC confirms implementation of the criteria recommended under point 2) t/m 5).		Closed - superseded by a new recommendation
C. IISG	Item 43, p.21 (of IISG report)		Continuous noise	Research activities such as photo-identification are the most likely to be affected by limits at higher levels because they sometimes involve close approaches to whales. However, the disturbance effects of photo-identification vessels will be reduced when vessels are idling and time spent at close range is intermittent, reducing the potential for exceeding the criterion. The transmission loss models developed by SEIC should be used to determine appropriate exposure distances to keep received levels at the whale within the stated limits when vessels come shoreward of the acoustic monitoring array.	SEIC	Agree. Experiments to measure noise produced by the Akademik Oparin, Akademik Lavrent'ev and zodiacs were conducted in 2004 and 2005. On the basis of the findings, 4 stroke motors were used instead of 2-stroke motors for the photo-ID zodiac. Specific whale safety protocols have been established outlining requirements to approach whales and safety distances.		Closed - implemented/resolved satisfactorily
C. IISG	Item 44, p.21 (of IISG report)		Continuous noise	Distribution data should be analyzed as quickly as possible during the 2006 season so as to detect potential changes in WGW distribution in response to noise from SEIC activities.	SEIC	Agree. In 2005 this was done on a weekly basis as the daily variation in distribution was too high to enable any detection of change. These weekly data were compared with historical data. <b>ACTION:</b> In 2006 a similar approach will be implemented with improvements where relevant.	June-Oct. 2006	Closed - implemented/resolved satisfactorily
C. IISG	Item 45, p.21 (of IISG report)		Continuous noise	Whale distribution in the area south of Piltun Lagoon, specifically in the area of the pipeline landfall, should be monitored continuously throughout the critical construction periods in 2006 to enable detection of northward movement of whales early in the season. Establishment of monitoring stations in the southern area is advisable, as is the placement of additional trained observers on ships working in the area.	SEIC	Agree. In addition to the two behavioural teams that operate north of the Piltun Bay mouth, a third behaviour team is being mobilized south of the Piltun Bay mouth in the area of the pipeline landfall to observe whales migrating north towards the feeding area. In addition, on the construction vessels that operate close to the landfall, experienced MMOs will be present to continuously scan the area for whales.	June-Oct. 2006	Closed - implemented/resolved satisfactorily
C. IISG	Item 46, p.21-22 (of IISG report)		Continuous noise	Shore-based observations of WGW behaviour seem well planned and executed. a) Whale behaviour observed from shore should be monitored in real time and integrated as fully as possible with acoustic monitoring.	SEIC	a) Agree. The information from the acoustic radio transmitted buoys will be provided to the behavioural team as they are collecting data to be incorporated into the real-time behavioural monitoring system.	2006 field season	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 47, p.21-22 (of IISG report)		Continuous noise	b) Observing only from shore stations may be inadequate to test whether whales are reacting to industrial noise, that is, whales at the eastern margin of the feeding area may be inadequately monitored.	SEIC	b) Agree. However, boat based behavioural observations need to be as unobtrusive as possible hence they need to be conducted with a small boat. Safety issues related to small boat operations offshore, especially with construction vessels operating in the area, prevent SEIC from conducting small boat based observations. Besides the safety issue, it is expected that whale observations at the eastern edge of the feeding area and further offshore will be limited. Aerial, vessel and onshore based distribution and abundance surveys conducted since 2001 show that most of the gray whale population lies on average 2.1 km from shore, with 95% within 5 km from shore.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 48, p.21-22 (of IISG report)		Continuous noise	c) A real time behavioural monitoring system such as Pythagoras should include the following: i. a robust method for gauging the effect of distance from shore, and ii. testing behavioural data for heterogeneity.	SEIC	c) i. The currently proposed real-time monitoring system implements both univariate and multivariate processing techniques. Distance from shore is one of the potential explanatory variables. Besides distance from shore, it is our intent to combine environmental factors, received sound levels, and behavioural observations in a multivariate approach to understand the potential impacts of the industrial activity in real-time. ii. Heterogeneity for shore-based observations is difficult given limited sample sizes and the inability to recognize individuals in the field from shore. Since 2004, shore-based photo-identification methods were incorporated in conjunction with behavioural observations. Information exchange with the IBM photo-ID team has been established to link their photo-identification records with animals monitored in the field in order to further evaluate heterogeneity based on the individual, age, and sex class level.		Closed - superseded by a new recommendation
C. IISG	Item 49, p.21-22 (of IISG report)		Continuous noise	d) Shore-based behavioural and distribution observations should commence at the same time, or preferably prior to, the start of construction activities.	SEIC	d) The very early start of the construction season forms a part of the suite of mitigation measures, and has been incorporated as we know that limited numbers of whales are expected to be present. The onshore vehicle based distribution teams will mobilize mid June as will the 3rd southern behavioural team. The two behavioral teams that operate north of the Piltun Bay mouth will mobilize in the 3rd week of June as the team leaders participate in the training of the 3rd behavioural team.	Mid June 2006	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 50, p.22 (of IISG report)		Continuous noise	Real time acoustic monitoring could be improved. In general, the IISG recommends improvement of acoustic monitoring equipment and that the SEIC acoustic monitoring program be operational during the entire construction season. (...) The best solution would be to use digital radio transmissions with greater reliability and dynamic range.	SEIC	SEIC agrees that the use of digital radio transmission would be the most ideal equipment. In the past, digital radiobuoys were used as the main monitoring equipment, but it turned out to be impractical to transmit over a digital radio link considering the amount of data and the transmitting distances required. Currently digital radiobuoys are used as back-ups. The buoys (T-AUARS) presently used for real time monitoring process and record digital data. The only part that is analog is the radio link from the buoys to the lighthouse. The dynamic range of the T-AUARS is enough for measuring the variation in received sound levels from the construction activities and to monitor for action criteria. For non-real time analysis, bottom mounted AUARS are used that record high fidelity digital data with much larger dynamic and frequency ranges.		Open - in progress
C. IISG	Item 51, p.22 (of IISG report)		Continuous noise	It would be very useful if all vessels were tracked acoustically using the array of buoys. If the acoustic recording buoys could be synchronized, they could be used as an array to localize the sources of sounds, which could be used advantageously to understand noise signatures and inform mitigation procedures, e.g., to determine which vessel was producing the highest level.	SEIC	Agree. This is done in real time by the Piltun lighthouse team through analysis of the raw data transmitted by an array of 5 synchronized acoustic buoys deployed along the edge of the Piltun feeding area. Individual vessels and their acoustic signal can be recognised and followed in real time.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 52, p.23 (of IISG report)		Continuous noise	Measurement of noise data from the inshore areas where whales are actually observed should be considered.	SEIC	A combination of buoys deployed at the 10m contour near the behavioural stations and 20m contour buoys will give a good understanding of any sounds generated in the inshore area propagating into the feeding area. Through the use of an advanced acoustic model, received sound levels can be calculated at the positions that whales have been observed and tracked for behavioural parameters, which will enable a coupling of acoustic and behavioural data.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 53, p.22 (of IISG report)		Continuous noise	SEIC should consider targeted, boat-based real time behavioural and acoustic monitoring. The whales that are most at risk of significant noise exposure and therefore disturbance are the ones farthest from shore and thus from the observation stations.	SEIC - WGWAP	SEIC agrees that this can provide valuable information. However, as stated earlier, safety issues for small boat based operations pose serious limitations to this type of survey. Further investigation into the possibility of implementing boat based surveys in 2006 without any impact on existing programs and without adding extra vessels in the area have yielded no results. <u>ACTION</u> : SEIC to consider with WGWAP if and how best to implement such a study for 2007 under the existing safety requirements.	End 2006	Open - no action yet taken
C. IISG	Item 54, p.23 (of IISG report)		Continuous noise	Based on the 2005 observations, criteria that trigger actions to reduce noise should be enforced more strictly for the 2006 season.	SEIC	In 2005 special computer programs were developed that alerted the acousticians automatically if criteria were being reached. Continuous watch was kept and pro-active measures taken where needed to reduce sound levels. In 2006, SEIC will again keep a close watch on received levels sound levels on the acoustic buoys at the border of the Piltun feeding area and relate those to offshore vessel movements and activities.	2006 field season	Closed - implemented/resolved satisfactorily
C. IISG	Item 55, p.23 (of IISG report)		Continuous noise	Whales may have been exposed at or within the boundaries of the monitoring array during the passage of vessels. For this reason, IISG has recommended continuous real-time monitoring, at least by ear. Compressed data also should be reviewed in real time by use of streaming 3-min and half-hour averages.	SEIC	Agree. SEIC conducts real-time monitoring with instantaneous amplitude and spectra from all the transmitting buoys available for visual and audio analysis. Instantaneous sonograms and spectra computed from raw data give greater opportunities for vessel noise recognition.		Closed - implemented/resolved satisfactorily
C. IISG	Item 56, p.23 (of IISG report)		Continuous noise	We also strongly recommend that identifiable sound sources, such as drilling and pipelaying vessels, support vessels, and photo-identification inflatable skiffs, should be logged with a time-stamp by observers so that the total contribution of SEIC to the local acoustic 'budget' can be reported.	SEIC	Agree. It is planned that all construction vessels will be equipped with the real time satellite tracking system PurpleFinder, and their positions logged. All research vessels and boats will keep a continuous log of their movements. These data will be integrated into the acoustic analysis.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 57, p.23 (of IISG report)		Continuous noise	Whales transiting in or out of the feeding area would have received high levels close to vessels, possibly in excess of criterion levels, as would whales near project vessels working within the feeding area, such as the photo-identification inflatable skiffs. In such cases, whale exposures would have been dominated by vessel noise, introducing additional error into the analysis of the effects of construction activities. These sources of error should be considered during further analysis.	SEIC	Only the zodiac and occasionally the larger research vessels work within the feeding area. The acoustic levels of these boats have been recorded. During the real time analysis of the acoustic data these occurrences are being detected and considered in the analysis.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 58, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (1) an appropriate acoustic monitoring effort be made in the pipeline construction zone south of the Piltun feeding ground.	SEIC	Agree. It is a good idea to place acoustic equipment as close as possible to the Piltun landfall in order to record received sound levels that whales migrating north would experience. <u>ACTION</u> : SEIC to look at available equipment and program to see whether one of the acoustic buoys can be used without compromising the existing program or if additional acoustic buoys are available.	Jun-06	Closed - implemented/resolved satisfactorily
C. IISG	Item 59, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (2) an additional (third) behavior/theodolite team, supervised by Glenn Gailey, be on site by late May 2006.	SEIC - TAMU	<u>ACTION</u> : TAMU is currently working on the logistics and hiring of personnel to get a team in the field. The earliest that this will be possible is mid June.	Jun-06	Closed - implemented/resolved satisfactorily
C. IISG	Item 60, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (2 cont.) This third team will need at least one more senior person experienced with the relevant methods and equipment (theodolite, focal animal and scan sampling), two research assistants and a full complement of needed equipment (i.e. theodolite, tripod, computer, radios, phone, etc.) and necessary infrastructure support.	SEIC - TAMU	SEIC confirms that these recommendations will be implemented. <u>ACTION</u> : Personnel to be sought and contracted and trained, logistics and equipment to be arranged.		Closed - implemented/resolved satisfactorily
C. IISG	Item 61, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (3) The initial research at the southern location (near land-shore dredging activity) should be conducted by O. Sychenko or G. Gailey, both of whom have conducted similar observational work for the past five years.	SEIC - TAMU	<u>ACTION</u> : SEIC confirms that this recommendation will be implemented.		Closed - implemented/resolved satisfactorily
C. IISG	Item 62, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (4) The third (new) observation team should be trained in methodology and observation techniques established in the current western gray whale behaviour research program.	SEIC - TAMU	<u>ACTION</u> : Training of 3rd team to be conducted by O. Sychenko and/or G. Gailey.		Closed - implemented/resolved satisfactorily
C. IISG	Item 63, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (5) Three observation stations in the southern region should be employed with one near the predicted 120dB footprint border to the south of the dredging activity, a second near the dredging activity (highest received levels) and a third near the predicted 120dB footprint border to the north of the dredging activities. From early June to mid-July, monitoring effort should be focused on stations 1 and 2, and after mid-July station 3 should be incorporated to evaluate potential avoidance by animals approaching the area.	SEIC - TAMU	<u>ACTION</u> : The locations will be chosen according to the IISG recommendations, taking into account the local field conditions.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 64, p.24 (of IISG report)		Continuous noise	Given the amount of construction occurring near the Piltun area in 2006, especially in the region approaching the southern portion of the nearshore feeding ground, the IISG recommends that: (6) If observations during the northbound migration indicate a complete avoidance (animals either remaining in the area and failing to progress northward to the feeding grounds or reversing to a southbound course), SEIC should consider disruption has occurred and take action to ensure that whales are not being prevented from reaching the primary feeding habitat.	SEIC	Agree. The communication protocol has been discussed with the offshore pipeline project team. <b>ACTION:</b> SEIC to implement the communication protocol and set it out in the MMPP for distribution to parties involved.		Closed - implemented/resolved satisfactorily
C. IISG	Item 65, p.24 (of IISG report)		Continuous noise	Independent behavioural monitoring team employing methods that would allow to compare data with SEIC/ENL.	SEIC	SEIC is happy to advise if required, but considers that this opportunity needs to be mediated by other parties.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
D. WGAP 1	WGAP 1/006	WGAP 1/3 - Section 7.1	Continuous noise	The Panel recommends that it be provided with a full analysis using effort-corrected data on distribution, for each year that such data are available, overlaid onto the appropriate acoustic 'footprint' information. The results should be integrated to produce an appropriate multi-year comparison of distribution, particularly for years with and without significant anthropogenic noise	SEIC	Further clarification is required from the WGAP on this in relation to overlaying with the acoustic footprint. SEIC will produce effort-corrected density analysis this year. <a href="#">&lt;See further clarification submitted by the WGAP&gt;</a>	To be determined depending on requirements.	Open - in progress
D. WGAP 1	WGAP 1/007 (0)	WGAP 1/3 - Section 7.2	Continuous noise	The Panel recommends that noise exposure criteria developed in the IISG report and intended for application in the 2006 construction season be followed during the 2007 season and thereafter unless, during the interim, sound exposures below the recommended thresholds are found to result in unexpected adverse effects.	SEIC	SEIC doesn't agree there is a valid scientific reason for changing acoustic criteria proposed by Vedenev in Gland in 2005 and adopted and implemented by the Company. SEIC will provide the reasoning for this. <a href="#">&lt;See detailed response from SEIC regarding sound criteria&gt;</a>	31-Dec	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/007 (1)	WGAP 1/3 - Section 7.2	Continuous noise	In addition, the panel <b>requests</b> the following information for its next meeting (spring 2007): (1) All acoustic data from buoys at the edge and inside the feeding area, reported in standard formats, e.g., dB re 1 µPa RMS levels for 1 minute intervals.	SEIC	Further technical clarification is needed: what frequency band and spectral resolution are required <a href="#">&lt;See detailed response from SEIC regarding sound criteria&gt;</a>	28-Feb	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/007 (2)	WGAP 1/3 - Section 7.2	Continuous noise	In addition, the panel <b>requests</b> the following information for its next meeting (spring 2007): (2) Actual day-by-day construction activities for each vessel involved in June-August 2006 construction.	SEIC	The data will be provided.	28-Feb	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/007 (3)	WGAP 1/3 - Section 7.2	Continuous noise	In addition, the panel <b>requests</b> the following information for its next meeting (spring 2007): (3) Whale distribution data for 2006, corrected for effort, analyzed with respect to noise levels, and compared to appropriate historical data.	SEIC	SEIC is planning to produce effort-corrected density analysis this year.	See above	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/007 (4)	WGAP 1/3 - Section 7.2	Continuous noise	In addition, the panel <b>requests</b> the following information for its next meeting (spring 2007): (4) An analysis of the relationship between the 2006 acoustic data and concurrent behavioural observations.	SEIC	On the basis of MVA report 2005 and further comments strategy for MVA 2006 will be defined.	To be defined	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/008	WGAP 1/3 - Section 7.3	Continuous noise	The Panel emphasises its concern about one major drawback of having multiple research and monitoring teams in the field, which is that it can add to the disturbance from vessel noise or vessel presence on and near the feeding grounds. Therefore, any encouragement of independent initiatives must carry a caveat – that due consideration be given to this concern and that every effort is made to avoid or minimise additional disturbance to the whales.	All research groups	SEIC confirms that the teams sponsored jointly by ENL and SEIC seek to minimize disturbance to the whales.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
E. Vladivostok	WGWAP/Vlad-03 (1)	WGWAP 1/007	Continuous noise	The Panel recommends that for every recorder available, Sakhalin Energy provides the following: (1) Spectrograms and amplitude levels for all recordings from all recorders, both real-time data from T-AUARs and sonobuoys and the post-season analysis of the recorders. These plots should take the form of those from a previous MNR report, for example, figure 1.8 from the following document prepared for the second Vancouver meeting (i.e., IISG) – 'WGWAP_13E_MNR_Report_Acoustics_Volume_1_2005.pdf'. This is a traditional presentation of acoustic data, and some completed analyses were shared at the Vladivostok briefing. Frequency analysis should be in 1 Hz steps, and time steps should be ≤1 min. We would make two recommendations regarding changes in the display of these data: i) the frequency axis should be linear, not logarithmic, and need only cover the range from 1-1000 Hz; and ii) the plots for the levels should be expanded so that the axis for the levels is larger and more readable.	SEIC		15.04.07	Open - in progress
E. Vladivostok	WGWAP/Vlad-03 (2)	WGWAP 1/007	Continuous noise	The Panel recommends that for every recorder available, Sakhalin Energy provides the following: (2) 90th, 50th and 10th percentile amplitude levels calculated for 1/3 octave bands up to 5 kHz every half-hour based on ≤ 30 sec time window analysis, i.e., for every recorder, again both the real-time recordings and the post-season analysis, we should see plots of at least the 90th, 50th, and 10th percentile levels for 1/3 octave bands, with the levels calculated every half-hour based on ≤ 30 sec windows. So, the levels are taken for every 30 sec time window, averaged over one half-hour, then the 10th, 50th, and 90th percentile levels for 1/3 octave bands are calculated.	SEIC		15.04.07	Open - in progress
E. Vladivostok	WGWAP/Vlad-03 (3)	WGWAP 1/007	Continuous noise	The Panel recommends that for every recorder available, Sakhalin Energy provides the following: (3) correlations between different hydrophones, e.g., how do the recordings of a particular event compare between a hydrophone at the edge of the feeding area and one inside the area?	SEIC		15.04.07	Open - in progress
E. Vladivostok	WGWAP/Vlad-03 (4)	WGWAP 1/007	Continuous noise	The Panel recommends that for every recorder available, Sakhalin Energy provides the following: (4) These data should be provided in documentation for the St. Petersburg meeting.	SEIC		15.04.07	Open - in progress
F. WGWAP 2	WGWAP 2/013	WGWAP 2/3 Section 10	Continuous noise	The Panel recommends that, for the period of 14-28 July 2006, the densities of whales and noise levels for a small area (blocks 7-9 from WGWAP 2/INF 11) be calculated and plotted together. Whale density should be calculated for grid cells of 10 km <sup>2</sup> (5 km parallel to shore x 2 km perpendicular) with a 1-day average and reported in whales/km <sup>2</sup> . The noise should be calculated with hourly averages, and the two datasets overlain on plots of standard line type with time/date on the x-axis and two y-axes, one for whale density and one for noise amplitude.	SEIC	SEIC will conduct this recommended analysis.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
F. WGWAP 2	WGWAP 2/014	WGWAP 2/3 Section 11	Continuous noise	The Panel requests that, in the future, information regarding the conduct of transmission loss (TL) experiments be included in the detailed work plan (see recommendation under Item 7).	SEIC	The scope of TL experiments is part of WGW scope of work that is being provided to the Russian authorities for approval. This information has been provided to the panel on May 15.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
F. WGAP 2	WGAP 2/015	WGAP 2/3 Section 11	Continuous noise	The Panel recommends that transmission loss experiments be conducted only in good-weather periods (and in daytime) to ensure that MMOs and the shore-based behaviour teams are able to monitor efficiently for the presence of gray whales.	SEIC	All TL or propagation measurements that require the operation of a transducer inside the 20 m contour of the Piltun feeding area are conducted according the following protocol: - Operations can only be conducted in daylight and in good visibility; - MMOs on the vessel should monitor a radius of at least 1 km and if gray whales are present measurements are postponed; - Source levels of any transducer monitored by the source hydrophone should not be greater than 150 dBrms re 1 µPa-m; - These protocols should ensure that no gray whale receives a sound level greater than 120 dBrms re 1 µPa. This protocol was provided to the panel during the meeting in the form of a 1 page briefing note.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/029	WGAP 3/3 Section 7.1.1	Continuous noise	The Panel understood that in rare cases the company could decide that it was infeasible to observe these criteria strictly, i.e., even with careful planning to minimize noise, some activities would, unavoidably, produce sufficient noise to breach the criteria. In such cases, the Panel <b>recommends</b> SEIC implement additional mitigation measures to minimize the risk to whales.	SEIC	SEIC will include this in its comments to 3/030 below.	Apr-08	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
G. WGAP 3	WGAP 3/030	WGAP 3/3 Section 7.1.3	Continuous noise	At WGAP-3, the Panel proposed a single revision to its earlier-proposed criteria for continuous noise. This revision related to the "low-level cutoff," i.e. the level below which industrial noise can be ignored and need not be counted as part of the overall dose received by the whales. The Panel <b>recommends</b> that the low-level cutoff be set at 107 dB re 1µPa <sub>RMS</sub> , the value resulting in the Panel's recommended maximum dose of sound energy for a 24-hour period (i.e., the extension of the function set out in WGAP2/15).	SEIC	SEIC acknowledge that the use of dose based criteria are becoming the norm and will revert formally to WGAP on this. The clarification on low-level cutoff is welcomed.	Apr-08	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
G. WGAP 3	WGAP 3/031	WGAP 3/3 Section 7.1.3	Continuous noise	The Panel <b>recommends</b> that adequate equipment should be made available to ensure that the most appropriate mitigation measures are followed and that the necessary monitoring data are collected.	SEIC	SEIC is constantly working with its acoustic contractors to improve the quality of the monitoring equipment. A special effort is being dedicated to equipment improvement in the lead-up to the acoustic monitoring of the seismic survey currently planned for 2009, in order to ensure accurate and high-availability data on which to base all mitigation measures.		Closed - superseded by a new recommendation
G. WGAP 3	WGAP 3/032	WGAP 3/3 Section 7.3	Continuous noise	The Panel <b>recommends</b> that a full report on both the acoustic and whale behaviour/distribution data from the 2007 construction season should be submitted for review at WGAP-4. The acoustic reports should be in approximately the same form as WGAP 2/INF.14 and WGAP 2/INF.14a. Whale distribution data should be reported for the whole season, in 1 km <sup>2</sup> blocks for 7-day moving averages. The behaviour data should be provided in a form similar to that of WGAP 2/INF.6.	SEIC	SEIC will, as in previous years, make available the full 2007 acoustic data analysis report from POI as well as the interpreted 2007 season acoustic report from JASCO. The latter will include an analysis of the noise distribution within the monitored region of the feeding area based on all available AUAR recordings and model-based interpolation. SEIC will provide report on 2007 behaviour monitoring in the similar form as requested.	Apr-08	Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
H. WGAP 4	WGAP 4/008	WGAP 4/4 - Section 7.1	Continuous noise	The Panel <b>agreed</b> with a proposal from Gailey that a dedicated comparison of scan and count methods as well as the analytical approaches used to calculate distance for data from the two teams would be a valuable contribution to proper integration of the distribution and behaviour data sets. The Panel <b>recommends</b> that such an analysis be provided for its review at WGAP-5.	SEIC	SEIC is currently standardizing all distance estimations from all surveys to avoid differences between surveys. A comparison of methodological approaches and observational data between the two shore-based surveys will be presented at WGAP5.	Dec-08	Closed - implemented/resolved satisfactorily
H. WGAP 4	WGAP 4/009	WGAP 4/4 - Section 7.1	Continuous noise	The Panel noted that the 'opportunistic' observations of GWGs by MMOs (particularly near the outer edges of the Pitun feeding area) had been plotted in WGAP 4/INF.10 but not used in the daily average estimated whale densities for the period from 21 June–24 July 2007. It <b>recommends</b> that such inclusion be attempted following the same principles as discussed under Item 10.2.1 and that the results be made available for Panel review at WGAP-5.	SEIC	Methods to include opportunistic data are being assessed in an attempt to include them in density analysis of GWG distributions.	Dec-08	Open - in progress
H. WGAP 4	WGAP 4/010	WGAP 4/4 - Section 7.2	Continuous noise	The Panel <b>recommends</b> that (i) the TL experiments be conducted as expeditiously as possible, preferably in a single year.	SEIC	TL experiments will be conducted as expeditiously as possible, but due to logistical constraints are unlikely to be completed within a single year.		Closed - implemented/resolved satisfactorily
H. WGAP 4	WGAP 4/011	WGAP 4/4 - Section 7.2	Continuous noise	The Panel <b>recommends</b> that (ii) the vessels used to deploy and pick up receivers within the feeding areas be the smallest practicable (e.g. rigid-hull inflatables) and be operated slowly and cautiously in order to reduce the risk of disturbance or collisions with whales.	SEIC	The acoustic monitoring systems are complex structures whose safe deployment and retrieval requires a larger support vessel, often aided by a small craft. SEIC has always ensured that these vessels are operated with full respect of whale protection measures including criteria of visibility, speed and avoidance distance.	Jul-08	Open - no action yet taken
H. WGAP 4	WGAP 4/012	WGAP 4/4 - Section 7.3	Continuous noise	The Panel <b>recommends</b> that equipment with the following specifications be used: (i) recording stations with analog-to-digital (A/D) converters of $\geq 16$ bits, (ii) the real-time acoustic data be transmitted at this bit-depth (i.e. $\sim 72$ dB dynamic range) in the frequency range of 1 Hz–3 kHz; and (iii) a sampling rate (Fs) of $\geq 20$ kHz for the archival buoys. The Fs $\geq 20$ kHz specification applies more to continuous noise from construction and/or platform operations, which can reach 10 kHz (Richardson <i>et al.</i> 1995), although signals from seismic airguns can reach 3 kHz (Madsen <i>et al.</i> 2006).	SEIC	SEIC and its Russian scientific partners are in the process of developing and rigorously testing a new generation of digital real-time monitoring buoys whose effective data rate specifications are still being finalized. The company has firmly committed to a sampling resolution of 16 bits and a sampling rate $\geq 20$ kHz for archival recording to internal hard disk. The data rate for digital telemetry to be used for the 2009 survey perimeter monitoring will be sufficient to provide effective audio monitoring over a frequency range no less than 1 Hz – 1 kHz which encompasses over 99% of the source acoustic energy of the airgun array.	Dec-08	Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 16.1		Cumulative effects	A rigorous assessment of cumulative impacts is essential (e.g. combined effects of noise, pollution, collisions, habitat disturbance, plus effects of oil and gas-related activities adjacent to Sakhalin II, plus range-wide risk factors. Some experts commented on MMPP 2005 and concluded that assessment of cumulative impacts has been too superficial, both in terms interactions between risk factors arising from Sakhalin II and aggregation of Sakhalin II impacts and wider-ranging impacts. The need to address cumulative effects also was identified at Gland, but was not discussed in detail. Cumulative impacts must be assessed and addressed through comprehensive, continued population monitoring, population modeling and review by the independent advisory body's work. The results of this work must be available for independent analysis of population status and trends, or whenever there is an indication that the population's status may have declined, whether or not the decline can be directly attributed to project activities or associated developments. Managing cumulative impacts will require a precautionary approach, a	SEIC	This area of research is to be covered under the proposed industry and range state wide advisory body (a cooperative review body) as envisaged as a follow-up to the Gland workshop. In the period before this body exists, SEIC intends to convene a workshop to discuss all aspects of gray whale conservation on an annual basis. Terms of Reference for the cooperative review body are under development. See issues 18.1 to 18.4.		Closed - superseded by a new recommendation
F. WGWP 2	WGWP 2/24	WGWP 2/3 Section 16	Data archiving	The Panel encourages Sakhalin Energy and all other groups involved in work on western gray whales to develop and pursue plans for centralized, long-term archiving of data and samples.	SEIC	See response to recommendation # 2/001. SEIC will work with the IUCN and the panel to see how this can be further developed.		Open - no action yet taken
A. ISRP	ISRP Report, p. 71		Environmental monitoring	The issue of artificial reef effect of the platform is not addressed in the CEA. Mitigation to prevent changes in the composition and abundance of marine organisms around the platforms is probably not feasible, but monitoring those changes may be important to future interpretations of changes in the broader Sakhalin Shelf ecosystem.		Monitoring of benthos communities (pollution related and composition) is part of the permit requirements. Benthos studies in GWG feeding area are also planned for long term.	May-05	Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 15.1		Environmental monitoring	Artificial reef effects of PA-B installation have not been addressed.	SEIC	SEIC will undertake post-construction ecological monitoring around the platform. Reef effects are likely to be over small spatial scale and probably will not affect (or: are very likely not to affect) the feeding ground. Further discussion required to see if this is a live issue. SEIC accepts that this issue will go to the WGWP.		Closed - superseded by a new recommendation
C. IISG	Item 13, p.9 (of IISG report)		Environmental monitoring	We recommend "sampling at permanent locations repeatedly" approach because of the value we see in high power to detect trends. (...) We recommend that minimum levels of detectable change be set at 25% for total benthic animal biomass, and at 50% for species that are dominant community members, such as those listed above. (...) We strongly encourage LTMP designers to make a maximum effort to attain replication levels necessary for the specified levels of minimum detectable change, ensuring adequate power to detect trends in benthic animal data.	SEIC-IBM	Benthic sampling in the whale feeding areas has been conducted both at permanent stations in order to enable the detection of trends and at variable locations within predefined grids to enable a better spatial coverage. <u>ACTION:</u> Check current sampling methodology for detectability of 25% for total benthic biomass, and 50% for dominant community prey species and on adequate statistical power.	End 2006	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 6, p.6-7 (of IISG report)		Environmental monitoring	Two primary questions must form the basis for the Long-term Monitoring Programme (LTMP) implementation in the gray whale feeding areas and in Piltun Lagoon: (2) How will events such as pipeline or platform construction that produce physical alteration of natural habitats, occurring in association with Sakhalin II activities, influence the structure and dynamics of marine benthic communities of significance to the nutrition of the western gray whale population? How will such effects be distinguished from natural variation in the ecosystems of the Okhotsk Sea region?	WGWAP to review available information and provide guidance to SEIC.	Research on the structure and dynamics of the benthic communities of the Piltun feeding area, with an emphasis on whale prey species, has been conducted since 2002 and provides good baseline data. No dredging for pipeline or platform installation will take place in either the Piltun or Chaivo whale feeding areas so direct physical disruption of potential food resources will not occur. Indirect disturbance due to sedimentation is not expected. Plume cloud monitoring activities were conducted as a routine activity during pipeline installation activities in Lunskeye in 2004, where sediments are broadly similar, and where construction methodologies and water depths are near identical as in Piltun. The results indicated a general transport of sediments to the south, based on net current direction. Also, the sediment plumes have not been shown to extend further than 500m either side of the pipeline, and turbidity was within background concentrations		Closed - superseded by a new recommendation
C. IISG	Item 8, p.8 (of IISG report)		Environmental monitoring	The relationship between sampling characteristics of grab samples and diver-obtained samples must be determined to permit standardization of data reporting. This is particularly important in light of frequent use of shallow benthic habitats as foraging locations by gray whales.	SEIC-IBM	SEIC commits to determine the relationship between sampling characteristics of grab samples and diver-obtained samples within 2006.	End 2006	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/016	WGWAP 1/3 - Section 11.0	Environmental monitoring	The Panel recognizes the spatial separation of Piltun Lagoon from Sakhalin II activities, but nevertheless continues to <b>recommend</b> studies of the linkage of Lagoon biota and detrital output with WGW feeding areas.	SEIC	In 2005 and 2006 SEIC benthic program included sampling inside and outside Piltun lagoon to investigate detritus transport and its influence on Piltun feeding ground. In light of the large number of publications available on Piltun lagoon biota and the fact that the Company is not planning any activity inside the lagoon SEIC sees little reasons for further studies there.	Apr-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/017	WGWAP 1/3 - Section 11.0	Environmental monitoring	The Panel recognizes the logistical challenges and potential costs of maintaining an effective LTMP in Piltun Lagoon, given its size and physical complexity and the spatial variation in within the lagoon ecosystem. It is <b>recommended</b> that Sakhalin Energy focus on measurements of quality and quantity of detrital transport from the Lagoon to whale feeding areas. Primary goals for study of detrital transport should be: identification of source species contributing to detrital mass, stable isotope signatures for detritus transported from the Lagoon to whale feeding areas, and interannual variation in quality and quantity of transported detritus.	SEIC	In 2005 and 2006 SEIC benthic program included sampling inside and outside Piltun lagoon to investigate detritus transport and its influence on Piltun feeding ground. In light of the large number of publications available on Piltun lagoon biota and the fact that the Company is not planning any activity inside the lagoon SEIC sees little reasons for further studies there.		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. GWGAP 1	GWGAP 1/018	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>suggests</b> that data on the abundances of mobile epifauna may be significant in understanding whale feeding behaviour, and <b>recommends</b> that Sakhalin Energy researchers work towards identification and application of an appropriate and efficient method for sampling mobile epifauna.	SEIC	Epifauna sampling is planned for 2007 with the intention of quantitative analysis of it in the feeding areas. Samples of epifauna taken in 2006 will allow for composition to be analyzed. This will be included in the final report due by Mar 31 2007.	Apr-07	Open - in progress
D. GWGAP 1	GWGAP 1/019	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>recommends</b> that Sakhalin Energy researchers continue to assess the potential value of sidescan methods in the context of benthic studies on the NE Sakhalin shelf.	SEIC	Side scan sonar value for the benthic study will be additionally assessed.	Apr-07	Closed - implemented/resolved satisfactorily
D. GWGAP 1	GWGAP 1/020	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel was asked to consider a proposal from WWF-Russia for sampling benthos in Severnaya Bay on the NW Sakhalin shelf, given recent observations of foraging gray whales there. It <b>notes</b> that such studies could be valuable and concludes that this work should be pursued. The Panel emphasises that methods for assessing benthos should be the same as those employed in Sakhalin Energy studies of benthos in the two known whale feeding areas on the NE Sakhalin shelf.	All research groups	First samples were taken in Severnaya Bay in 2005. More sampling was carried out in 2006 and that allowed for delimiting of the area available for whale feeding. The same methodology used in the feeding areas was applied. Prey stock is planned to be estimated in 2007.	Nov-07	Open - in need of clarification/expansion
D. GWGAP 1	GWGAP 1/021 (1)	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>recommends</b> that Sakhalin Energy researchers take the following concepts into account as they proceed to develop LTMPs of benthic communities in the whale feeding areas: (1) LTMP design should reflect consideration of possible spatial and temporal separations in processes important to benthic community structure, dynamics and productivity. Detrital transport connections between Piltun Lagoon and the whale feeding areas are an example of spatially distinct processes that could be important to whale food availability. Effects of winter and spring sea ice cover and movement on subsequent patterns and productivity of benthos provide examples of potentially important processes that are temporally disjunct.	SEIC	In 2007 plans are to start sampling program earlier in the season to be able to estimate prey distribution and development prior to the feeding season.	Nov-07	Open - in progress
D. GWGAP 1	GWGAP 1/021 (2)	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>recommends</b> that Sakhalin Energy researchers take the following concepts into account as they proceed to develop LTMPs of benthic communities in the whale feeding areas: (2) Continued monitoring of benthic communities in the whale feeding areas, using sampling approaches employed in previous years, is essential as a long-term commitment. Sampling effort should continue to focus on target variables identified in the IISG report. To maximise the potential both for large-scale inference and for discerning trends, sampling should continue in three categories: 1) a stratified random sample placement; 2) sampling of a grid of spatially fixed study sites; and 3) sampling in proximity to identified whale feeding locations.	SEIC	The approach proposed was extensively used in previous years and will be employed again in 2007.		Open - in progress
D. GWGAP 1	GWGAP 1/021 (3)	GWGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>recommends</b> that Sakhalin Energy researchers take the following concepts into account as they proceed to develop LTMPs of benthic communities in the whale feeding areas: (3) The development of effective methods for summarizing data on benthic communities and placing them in the contexts of spatially explicit time series is highly desirable. Such an approach is suggested because of the potential value in understanding connections between food availability and other time-varying patterns, such as annual calf production and the 'skinny whale' phenomenon.	SEIC	GIS system is a part of the data management plan and is planned to be designed and implemented for the whole benthic dataset.	To be determined once the scope is fully identified.	Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. WGAP 1	WGAP 1/021 (4)	WGAP 1/3 - Section 11.0	Environmental monitoring	The Panel <b>recommends</b> that Sakhalin Energy researchers take the following concepts into account as they proceed to develop LTMPs of benthic communities in the whale feeding areas: (4) Geographic information system (GIS) technology should be applied to the management and presentation of benthic community data. This approach facilitates the characterisation and communication of patterns in the data, and will contribute to understanding the linkages between community patterns and various physical, biological and anthropogenic processes on the NE Sakhalin shelf.	SEIC			Open - in progress
D. WGAP 1	WGAP 1/022	WGAP 1/3 - Section 11.0	Environmental monitoring	The Panel further <b>recommends</b> that it receive at its next meeting an integrated analysis and overview of results so far, with special attention to the observed annual difference in calf production.	SEIC	Calf production will be reported in Photo-ID report. Additionally calf feeding points benthic sampling analysis will be presented in the Benthic report. Due by Mar 31 2007.	Apr-07	Open - in need of clarification/expansion
F. WGAP 2	WGAP 2/001	WGAP 2/3 Section 4	Environmental monitoring	The Panel recommends that Sakhalin Energy's scientists take into account the Panel's recommendations from the WGAP 1 (November 2006) in the planning and execution of 2007 benthic fieldwork (see WGAP 2/INF 1). The Panel attaches particularly high priority to the recommended incorporation of benthic ecosystem data into a GIS-type database in order to facilitate two types of investigation: (1) a more thorough understanding and appreciation of spatial and temporal patterns in the benthos, and (2) evaluation of quantitative relationships among benthic data and data from other aspects of the study of western gray whales in the area. For example, benthic ecosystem data should be included among the variables incorporated in analyses of noise effects.	SEIC	During the Vladivostok meeting in January 2007 between GIS experts and scientists involved in WGAP monitoring it was decided to include the benthos data in to GIS database together with the other parameters, such as distribution, acoustic, etc. It is being implemented jointly with ENL and will be ready by end 2007 as was committed in response to WGAP 1 recommendation	31-Dec-07	Open - in progress
F. WGAP 2	WGAP 2/002	WGAP 2/3 Section 4	Environmental monitoring	Recognizing the practical difficulties that occurred last year (2006), the Panel recommends that timing of sampling of benthos be standardized within month among years, to the maximum extent practicable.	SEIC	SEIC is aware of the importance to standardize the benthic sampling period and has and will continue to undertake all effort to ensure this happens in 2007 field research and beyond.		Closed - implemented/resolved satisfactorily
F. WGAP 2	WGAP 2/003	WGAP 2/3 Section 4	Environmental monitoring	The Panel recommends that Sakhalin Energy's scientists attempt field collections of fecal matter from foraging whales, to the extent practical and with minimal disturbance of foraging whales, to search for hard-part remains of sand lance and to assess the frequency and significance of sand lance in the whales' diet.	SEIC	A fecal sampling program requires a boat to maneuver in extremely close proximity to animals, with the potential for disturbance. SEIC will try to collect fecal matter in 2007 if it appears possible with only minimal disturbance to the whales. SEIC will discuss the practicalities of such a programme in future years and will report to the next WGAP.	31-Oct-07	Open - in progress
D. WGAP 1	WGAP 1/030	WGAP 1/3 - Section 14.0	Mapping & spatial data	It was agreed that there was a need for access to an authoritative, up-to-date and more detailed map showing the spatial boundaries (including latitudes/longitudes) of the existing (and proposed) oil and gas lease areas on the Sakhalin Shelf. The Panel <b>recommends</b> that IUCN consult with industry (Sakhalin Energy as well as other companies), Russian governmental agencies, NGOs and other sources, as appropriate, to obtain better information on oil and gas activities in the Sakhalin region. Such information needs to be provided to the Panel on a routine basis.	IUCN	IUCN will establish an in house GIS capability within the Global Marine Programme. IUCN is exploring options for gaining access to an authoritative data set of offshore oil and gas data for the Sakhalin region. Once this is finalised, an update (with maps as appropriate) will be provided to the Panel and a progress report will be presented to the next WGAP meeting.	Apr-07	Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. WGAP 1	WGAP 1/031	WGAP 1/3 - Section 14.0	Mapping & spatial data	The Panel further noted that it would be useful to obtain access to expertise in spatial data management and modelling (e.g. GIS, 3-dimensional modelling) for assistance in analysing existing and future data and for helping to ensure that such data are archived for future use. The Panel <b>recommends</b> that IUCN investigate and pursue this matter with Sakhalin Energy and relevant panel members on an ongoing basis and that a report on progress be provided at the next WGAP meeting.	IUCN	Once IUCN has established the GIS system in house, it will liaise with other data holders/providers in order to identify relevant data sets and discuss with those data providers the most effective way of making these available to the Panel. IUCN will present a progress report to the next WGAP meeting.	Ongoing – progress report April 2007	Open - in need of clarification/expansion
D. WGAP 1	WGAP 1/003	WGAP 1/3 - Section 6.0	Multivariate analysis	Time spent by GWs diving may be an indicator of foraging effort or success and should be explored more carefully. Accordingly, the Panel <b>suggests</b> that reanalysis of behavioural data based on percent of total time spent below the surface would be a useful follow-up to assess possible changes in foraging effort.	SEIC	SEIC approach is to finalize and publish the MVA report and then address any additional proposals made by the WGAP rather than continuously delaying the publication of the report.		Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/005 (1)	WGAP 1/3 - Section 6.0	Multivariate analysis	The Panel recommends that: (1) The above 'points to consider' be taken into account in the final report on the multivariate analysis of 2005 data.	SEIC	SEIC approach is to finalize and publish the MVA report and then address any additional proposals made by the WGAP rather than continuously delaying the publication of the report.		Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/005 (2)	WGAP 1/3 - Section 6.0	Multivariate analysis	The Panel recommends that: (2) In the final report, and in any other outlet citing its findings (e.g. on Sakhalin Energy's website), the study's limits, as outlined above e.g. in relation to the lack of baseline (pre-disturbance) behavioural data and the failure to collect behavioural data during the two loudest phases of the construction activity, be clearly acknowledged. It should not be claimed that the extent of the whales' response to noise, such as movement offshore, has been quantified.	SEIC	SEIC approach is to finalize and publish the MVA report and then address any additional proposals made by the WGAP rather than continuously delaying the publication of the report.		Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/005 (3)	WGAP 1/3 - Section 6.0	Multivariate analysis	The Panel recommends that: (3) The foregoing concerns and suggestions be considered in analyses of effects using 2006 data and also in the planning and decision-making process for data collection and analysis in 2007.	SEIC	SEIC approach is to finalize and publish the MVA report and then address any additional proposals made by the WGAP rather than continuously delaying the publication of the report.		Closed - superseded by a new recommendation
E. Vladivostok	WGAP/Vlad-05	WGAP 1/005	Multivariate analysis	The Panel was advised at the Vladivostok briefing that although the 2005 MVA will be completed by the time of the St. Petersburg meeting, the 2006 MVA will not be ready for review. At a minimum, in the absence of a full 2006 analysis to review, the Panel recommends that SEIC scientists make available an outline of the methodology planned for the 2006 MVA. This outline should be provided prior to WGAP-II so that it can be discussed and considered during the St. Petersburg meeting. The Panel also requests that the input data used for the 2005 MVA, and the intended input data for the 2006 MVA, be submitted to the Panel.	SEIC		15.04.07	Closed - superseded by a new recommendation
F. WGAP 2	WGAP 2/011	WGAP 2/3 Section 8	Multivariate analysis	Unless whale behaviour is monitored over the long term, it will be impossible to characterize and assess cumulative effects on the whale population, including those arising from the activities of other oil and gas companies operating in the region. Continuity in data series often proves essential for interpreting observations in a single season or year. For these reasons, the Panel recommends continued, annual monitoring of gray whale behaviour off Sakhalin.	SEIC	SEIC will consider to continue annual behavioral monitoring but will review this from time to time.	30-Sep-07	Open - in need of clarification/expansion
H. WGAP 4	WGAP 4/006	WGAP 4/4 - Section 6.3	Multivariate analysis	The Panel <b>recommends</b> (1) that analyses of the 2006 data fully consider the earlier comments made in WGAP 1/INF.2 and by the Panel (Annex 8).	SEIC	MVA is currently under development and will take into consideration this recommendation.	Dec-08	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
H. WGWAP 4	WGWAP 4/007	WGWAP 4/4 - Section 6.3	Multivariate analysis	The Panel <b>recommends</b> (2) that SEIC engage the assistance of the experts involved in the aforementioned independent review to work in a pro-active collaboration with Gailey and colleagues from the outset (rather than simply in a reviewer capacity), including at the variable-selection and treatment design stage as well as at the analytical modelling stage, to ensure a comprehensive analysis and interpretation of the 2006 data.	SEIC	Appropriate reviews will be undertaken.	Jul-08	Open - in progress
F. WGWAP 2	WGWAP 2/021	WGWAP 2/3 Section 15	Non-SEIC Groups	The Panel encourages the continued development of any proposal that may contribute to improved conservation of the western gray whale population. The Panel supports efforts that include protection of Piltun Lagoon from industrial development and other types of anthropogenic disturbance.				Closed - implemented/resolved satisfactorily
F. WGWAP 2	WGWAP 2/22	WGWAP 2/3 Section 15	Non-SEIC Groups	In cases of planned studies of western gray whales by non-Sakhalin Energy groups that wish to have comments from the Panel, the Panel requires written documentation well in advance of meetings to ensure adequate time for review.				Closed - superseded by a new recommendation
F. WGWAP 2	WGWAP 2/23	WGWAP 2/3 Section 15	Non-SEIC Groups	The Panel emphasises the need for all research groups to minimise disturbance of whales while conducting fieldwork, and to provide information about field activities that may be relevant to the interpretation of acoustic data collected in the study area.				Closed - superseded by a new recommendation
G. WGWAP 3	WGWAP 3/040	WGWAP 3/3 Section 15	Non-SEIC Groups	The Panel <b>reiterated its request</b> from WGWAP-2 that in cases where independent groups studying WGWs wish to receive comments from the Panel, they need to provide written documents well in advance of meetings to ensure adequate time for review.	3rd Parties			Open - in progress
G. WGWAP 3	WGWAP 3/041	WGWAP 3/3 Section 17.3	Non-SEIC Groups	No clear way forward on this problem [little information on third parties' activities on the Sakhalin shelf] was identified although the Panel acknowledged IUCN's previous efforts to establish communication links with other operators. The Panel <b>recommends</b> that such efforts be accorded high priority and continue to be made.	IUCN/SEIC	The problem mentioned here is the lack of timely information on the activities of other companies operating in the region. Where SEIC has data that other companies authorise us to pass on we will do so.		Open - in progress
A. ISRP	ISRP Report, p. 50		Oil spill & gas associated risks	These [persistence time] estimates indicate that sea surface temperature and wind speed are important determinants of persistence time, but the CEA does not give the year-round information on regional sea surface temperature and wind speed needed to predict their actual influence on persistence times of spilled oil.		Provision of this data was not required given the scope of the CEA but was of course used in determining trajectories. The influence of time and energy on fate of the oil slick was modelled and this can be related back to the distribution of wind speeds and temperatures in the region to determine the probability of persistence. This work has no implication or use for OSR, but if deemed significant for environmental impact assessment, can be done. A reassessment of the physical character of the Phase 2 crude oil (spreading coefficients, viscosity, evaporation rates under a range of conditions, emulsification rates under realistic conditions etc) and also chemical characteristics of the crude oil and weathered residuals is also intended. Some laboratory weathering studies are also planned.	Phase 1 at end of 2005, Phase 2 at end of 2006	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
A. ISRP	ISRP Report, p. 51		Oil spill & gas associated risks	The available information is not sufficient to determine persistence patterns or rule out persistence times that are sufficiently long to expose the feeding areas, whales and prey populations to oil and at least some portion of its more toxic components.		Available information does not allow this to be quantified with absolute certainty but available literature and oil characteristics do allow for a qualitative prediction. The approach taken in the CEA was conservative and trajectories used assumed persistence.	Phase 1 at end of 2005, Phase 2 at end of 2006	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 51		Oil spill & gas associated risks	The CEA does not explicitly consider effects of possible emulsification processes on persistence time, and as a result may be underestimating the persistence of oil spills at sea. Underestimates of persistence time contributes to important biases in estimating both trajectories and excursion envelopes for spilled oil. As a consequence, sizes of excursion envelopes presented in the CEA are very likely biased downwards.		Vityaz crude oil can be emulsified but the emulsion is unstable. The characterisation work undertaken did not specify mixing energies used to emulsify oil. This work is being redone. However, the excursion envelopes assume persistence and so are conservative. Actual envelopes will be smaller.	Dec-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 51 3.1.2.4		Oil spill & gas associated risks	Key Scientific Information and Gaps: Prediction of oil spill effects will be enhanced by several types of information currently not available, including: (iii) Alteration of acute toxicity patterns for spilled oil resulting from application of dispersants.		There is ample evidence in the available literature on influence of dispersants on the effects of oil on a range of marine species. Toxicity data alone does not indicate effect. This is influenced in the short-term by distribution, dilution etc and in the longer term by considering dilution, threshold effects and HC degradation.	End of 2005 for NEBA study.	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 51 3.1.2.4		Oil spill & gas associated risks	Key Scientific Information and Gaps: Prediction of oil spill effects will be enhanced by several types of information currently not available, including: (vi) Potential for spill-derived contaminants to concentrate through the food chain and become detrimental to WGW health and population parameters.		There is very little evidence for accumulations of these in food chains as a result of spills and even less on the significance of HC's that have been detected.	N/A.	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 51-52 3.1.2.4		Oil spill & gas associated risks	Key Scientific Information and Gaps: Prediction of oil spill effects will be enhanced by several types of information currently not available, including: (i) Direct acute toxicity of spilled oil to prey, by prey species, (ii) Pattern of change over time in acute toxicity of oil to prey, by prey species, due to natural weathering of spilled oil, (iv) Chronic effects of spilled oil on prey health and life history, including age-specific survival threats, age-specific fecundity rates, feeding efficiency and population-level resilience to additional disturbances, both natural and anthropogenic (e.g. a second spill) and (v) Acute and chronic effects of spilled oil on prey food supply.		Obtaining meaningful toxicity data on indigenous amphipods will take a considerable time and is a complex task (RU labs to be assessed and calibrated or getting suitable test species. / individuals overseas for testing). Problems with specificity of tests, i.e. similar amphipods at similar temperatures etc need to be found.	N/A	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 52		Oil spill & gas associated risks	Key Scientific Information and Gaps: Prediction of oil spill effects will be enhanced by several types of information currently not available, including: (vii) Potential patterns of acute and chronic toxicity and health impairment of gray whale prey in the event of spillage of drilling muds, domestic sewage or other toxic pollutants from offshore drilling platforms or other categories of project infrastructure.		SEIC could possibly support a better inventory of non-oil spill risk –including plume distributions of non-oil losses and discharges but it needs further discussion with the Panel to determine whether this will significantly add to our knowledge. Waste management plans are in place for all platforms and vessels.	May-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 55		Oil spill & gas associated risks	As tanker-based transportation is known to constitute a significant risk of a spill, specific information was requested on all tankers that have loaded at the Vityaz Marine terminal and those that will be used to carry oil from the Prigorodnoye export terminal. All that was provided was a list of names, ages and hull configurations for tankers that have loaded to date. Thus, a credible characterisation of the fleet with regard to spill risk was not possible.		Information on future vessel traffic was not available at the time of publishing the CEA. No tankers have loaded at Prigorodnoye to date. It is unlikely that this will represent future tanker traffic at Aniva. If possible, SEIC could try to obtain this data.	May-05	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
A. ISRP	ISRP Report, p. 55		Oil spill & gas associated risks	P. 55: The CEA did not discuss in any detail the relative consequences of spills associated with the alternatives, but they could be important and are considered in more detail below in section 1.3.1.1 (selection of platform location and pipeline alternatives.		Spills from platforms are covered in the CEA and modelled. Excursion envelopes for blowouts will be similar. Worst case blowout volumes are relatively high and initial (0-12 hour) perimeters may be slightly different (larger) due to influence of spreading. Duration of blowout will also influence these.	Jul-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 57		Oil spill & gas associated risks	The CEA did not model the worst-case scenario, i.e. that of a platform blow-out, but such modelling is essential for a thorough and unbiased assessment of risk. The CEA did not model spills occurring during winter months when weather conditions may be more severe than those modelled (10-year averages for spring, summer and autumn) and when the sea may be covered with ice. Again, such modelling is essential for a thorough and unbiased assessment of risk.		This comment has been taken into consideration and further work will be undertaken during OSRP planning.	End of July 2006	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 59		Oil spill & gas associated risks	The leak detection system proposed by SEIC is capable of detecting leaks equal to 1% of the daily amount of oil transported. However, a more effective leak detection (0.4%) has been reported for the TransAlaska Pipeline System (U.S. Bureau of Land Management 2003). This system employs a combination of deviation alarms for pressure and flow rate, line volume balance leak detection, and transient volume balance leak detection systems. This might be considered a 'best practice' but the CEA does not explain why such a system (with a corresponding level of detection) is not proposed for use in Sakhalin II Phase 2.		SEIC should look at available systems as part of internal QA/QC to verify ALARP.	Apr-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 62		Oil spill & gas associated risks	Information is needed on the following topics for a comprehensive analysis of risks associated with Phase 2: (I) Risks related to construction and operation of Prigorodnoye Oil and Gas Export Terminal.		This comment has been taken into consideration and further work will be undertaken.	Jul-05	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 62-63		Oil spill & gas associated risks	Information is needed on the following topics for a comprehensive analysis of risks associated with Phase 2: (iv) a more thorough analysis of pipeline spill risk to compare the base case and Alternative 1, based on the likelihood of a spill due to pipeline length, more disturbance associated with construction and other relevant factors (e.g. bottom type) versus the chance that a spill would reach the nearshore gray whale foraging habitat.		This work has been undertaken. The bottom profile was considered in risk analysis. The base case is not proceeding and so no comparison is required.	Jul-05	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 63		Oil spill & gas associated risks	Information is needed on the following topics for a comprehensive analysis of risks associated with Phase 2: (vii) spill response plans, particularly with respect to winter scenarios, training and 'practice' exercises, coordination of Tiers 2 and 3 and measures to protect WGW and their habitat.		OSRPs for Operations are being prepared and these aspects are being addressed. Further expert input will be sought during the planning process.	Plan ready for approval by Sept 2005. To be approved by July 2006.	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 98		Oil spill & gas associated risks	The Panel's review identified the following general areas of future research: Investigation of the ocean dynamics (currents, tides, winds) in the vicinity of Sakhalin II, the Piltun and offshore feeding habitats and Piltun Lagoon – inter alia this will allow for better modelling of the dynamics of oil spills and improved response strategies.		SEIC already records winds. DVNIGMI oceanographic data is extensive in the area and based on field surveys over decades. SEIC OSR consider this a more than adequate basis for OSR planning needs	N/A	Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 98		Oil spill & gas associated risks	The Panel's review identified the following general areas of future research: If one or more spills or releases occur, investigation of (1) any direct, acute effects of oil and gas on whales and (2) the effects of chronic exposure should spilled oil remain present for a prolonged period.		SEIC commits to undertaking monitoring in this area.	N/A	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 11.1		Oil spill & gas associated risks	Further work is required to demonstrate that impacts are ALARP. CEA risk assessment does not assess the actual risks of oil spills (i.e. frequency and impact) but only provides estimates of frequency, volume, and selected excursion envelopes. The ISRP report estimates a 24% probability of a pipeline spill and a 3% likelihood of a platform blowout over the project's 40-year lifecycle. Impacts on feeding grounds (e.g. portion affected, prey lost) have not been quantitatively assessed. Persistence, emulsification effects, etc. are not adequately described, confounding attempts to link changes in oil condition to impacts on benthos. Existing documents lack information regarding toxic effects on prey and prey food chain. A Lender review noted that a more detailed risk assessment (impact and frequency) is required to demonstrate risks are ALARP. The CEA does not define risk acceptability for oil spills as required under ALARP demonstration. The need to assess oil impacts on benthos/prey was re-iterated by experts' written responses to the SEIC Issue Table for the Gland workshop.	SEIC	Future analytical work will be carried out on persistence times, etc., for Oil Spill Response Plans (OSRPs) (21). SEIC notes that excursion envelopes are based on conservative assumptions about persistence. Work has been commissioned to assess the characteristics of Vityaz oil including mixing realistic energies for emulsification. These studies are ongoing (21). Oil spill response planning assumes damage/harm on impact and does not require detailed toxicological or other work designed to quantify potential damage. SEIC maintains that the spill frequencies and volumes stand up well against what could be expected industry-wide (although comparisons are difficult as there are far fewer oil spill QRAs than ones for personnel risk). The maximum credible spill sizes, even taking a 10,000 year return period, are less than the RF figures for a Platform "design" spill (21, 35). Detected pipeline release volumes are also less than this figure. Undetected rates can be larger, but these relate to long term low leak rate spills below the Atmos system detection		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 11.2		Oil spill & gas associated risks	Sakhalin Island and surrounding waters are subject to considerable seismic activity. It is unclear whether estimated spill frequencies and platform/pipeline designs adequately reflect and take account of the region's seismic activity. AEA QRA experts have identified the spill frequencies for pipelines as being within expected range, but it is not clear that the estimated spill frequencies take into account the extraordinary seismic activity in this region.	SEIC	This issue has been addressed in the QRA (6, 7). The assessment found no significant difference between the three PA pipeline routes in terms of release frequency, maximum credible spill volume, or oil spill risk; seismic risk factors were incorporated into the assessment. (REFS: 6, 7, 29a). Lender expert consultants could assist with a review of the QRA and offshore seismic risks.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 11.3		Oil spill & gas associated risks	The region in question is under ice for about half of the year. Successful mechanisms for responding to oil spills under ice have not been identified and it is not clear that SEIC has a plan and can respond to such a spill.	SEIC	Oil spill trajectory modelling in winter/ice conditions has been conducted for some areas and will be undertaken in all areas as part of the development of the OSRP (21). A three volume report on Oil Spill Behavior and Oil Spill Response in Ice Conditions is now available (33). This review estimates ice conditions in the area of SEIC operations, compares ice conditions with other areas, establishes appropriate strategies for oil spill response in accordance with ice conditions, evaluates different response equipment effectiveness, and provides an estimate of the equipment required. A number of oil recovery systems are known to work in ice conditions (e.g. rope mops) and these are being assessed (21, 33). (REFS: 21, 29a, 33). SEIC continues to develop its winter spill response plans through industry workshops, equipment assessment programmes, and additional commissioned studies. SEIC accepts that this issue will go to the WGWP.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 11.4		Oil spill & gas associated risks	The CEA did not assess the risks of platform blowout. At the least, these risks should be assessed by review of the company's historical record and experience with blowouts. In addition, SEIC could have provided a description of the operations that occur on or under the platform and the steps taken to avoid blowout at each operational stage.	SEIC	Blowouts have been considered in the QRAs undertaken to date and are being reconsidered in QRAs for OSRPs (REFS: 20). SEIC note that the QRA was produced for the basic platform design in 2003. The independent assessment referred to by the panel is an assessment of the QRA process, rather than the risks associated with design and operations.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 11.5		Oil spill & gas associated risks	Risk associated with spills from the construction and operation of the Tanker Loading Unit have not been adequately assessed and described. Similarly, tanker risks have not been properly assessed. Some experts identified these risks as significant and stated that further analysis of possible risk scenarios is required.	SEIC	A QRA update (35) has been commissioned for Tanker Loading Unit risks (all operations are being reassessed for OSRPs). A tanker risk assessment is being commissioned (37). Trajectory studies for a range of tanker spills have been undertaken and probabilities of shoreline impacts have been calculated for OSR planning purposes. This issue is not considered relevant to WGWP except perhaps during migration. (REFS: 35, 37). Although not relevant to the WGWP, an assessment is to be initiated on sensitivity mapping available on Hokkaido. SEIC accepts that this issue will go to the WGWP.		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 11.6		Oil spill & gas associated risks	Further investigation of the ocean dynamics and ecology in and around Pitun lagoon is required to better assess risks to WGW and support route selection. Experts written response to SEIC document prior to Gland stated that adequate protection of Pitun lagoon still not clear because the region is still threatened by the risks of a spill from the platforms, as well as the pipelines. Oil spill response documents indicate that spill responses will be guided, in part, by trajectory modeling. The ocean dynamics in the region of the PA-A and PA-B platforms and the Pitun Lagoon will be critical determinants of the impact of spilled oil. Understanding these dynamics prior to a spill is essential for such modeling and to improve the chances of successfully protecting the Lagoon should a spill occur.	SEIC	SEIC questions the value of the studies suggested by the ISRP and notes that selection of Alternative 1 provides greater spatial separation of the pipeline and Pitun Lagoon. In the unlikely event of a spill, there are identified strategies (such as booms, deflection and collection) that can be used to protect the lagoon entry. The trajectory modeling capability of SEIC will be continuously improved. The new model will draw on regional oceanographic data and from SEIC's own database. Pitun Lagoon ecology studies have been conducted on behalf of SEIC and can be forwarded to the WGWAP. The Pitun Lagoon and the adjacent feeding areas are and will continue to be priority areas for oil spill response.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 11.7		Oil spill & gas associated risks	Risk associated with gas releases requires greater consideration/ evaluation. Some experts at Gland reiterated ongoing concern on this matter. Some experts' written responses to SEIC Issue Table noted that SEIC claim that gas or gas-related accidents would not affect the WGW is unsubstantiated. There are two issues here: 1) potential impact of direct contact of whales or their prey/habitat with gas, and 2) what risks are associated with gas accidents at the platform or pipeline. Even if the former is not a significant risk, it is not clear that the latter risks have been addressed in assessments of oil-spills and blowouts.	SEIC	SEIC believes there to be no possible effects on WGW from gas releases. Frequencies/volumes of gas releases are being assessed for Lunskeye. The need for gas plume modelling for environmental assessment purposes will be reassessed. Gas release is not an OSR issue. This is no longer an issue with the selection of Alternative 1. (REF: 6)		Closed - implemented/resolved satisfactorily
B. Lenders	Vancouver I workshop report, issues table 11.8		Oil spill & gas associated risks	The CEA did not assess in detail the relative consequences of spills associated with the pipeline alternatives.	SEIC	The CEA provided a comparative risk assessment not a quantitative environmental risk assessment. Alternative 1 has also now been selected.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 12.1		Oil spill & gas associated risks	Information was requested by the ISRP but not received regarding specifications for tankers to be used to transport oil and gas from the Vityaz complex (until it is closed) and from Prigorodnoye. SEIC stated in Gland that they are committed to double-hulled tankers.	SEIC	SEIC has committed to double-hulled tankers year round (21). A tanker vetting procedure in place, which is described in the EIA Addendum on Oil Spill Response (21). SEIC discuss with experts what else, if anything, is required. (REF: 21, 29a). Lenders' independent consultant has reviewed SEIC's tanker vetting procedure and this may help close-out the issue.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 12.2		Oil spill & gas associated risks	Pipelines contain leak detection systems that may not detect leakage of hundreds of barrels of oil per day, which in turn may pose a significant risk to the whales and their habitat. The ISRP questioned whether the existing leak detection system is the best available. In addition, the ISRP raised questions about the ability to detect leaked oil given ice coverage during half the year, darkness, fog, and rough seas. Scientists' written response to SEIC Issue Table (provided at Gland) noted that the SEIC response was unclear on this and greater detailed is required to demonstrate ALARP.	SEIC	Leak detection for SEIC pipelines will use a variety of strategies (15, 21). Stated detection level of the proposed SEIC leak detection system is 1% of daily flow (of 0.4% claimed on TAPS; [17]). SEIC will assess systems to verify ALARP. ATMOS system meets detection criteria. A study of system sensitivity has been completed and is in review (17). Relocation of the pipeline to Alternative 1 has also lessened the risk to the feeding area (15). The EIA Addendum (21) provides additional information on leak detection systems to be employed. (REFS: 15, 17, 21, 29a)		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 13.1		Oil spill & gas associated risks	Information is required on the oil spill response plans in order for comprehensive assessment to be made. This includes recovery under ice conditions.	SEIC	SEIC is preparing, developing, researching and implementing a comprehensive OSR strategy as part of the overall management of OSR risk issues (3, 13, 31). Research into oil recovery in ice conditions ongoing by SEIC and in July 2005 a three-volume Oil in Ice project was completed (33). The EIA Addendum provides extensive detail on OSR issues (21). The EIA Addendum includes a table (Table 2.10) that provides a summary of the main study projects for OSRP development and related activities. (REFS: 3, 13, 21, 29a, 31, 33). SEIC has a number of OSRP in development: Corporate Operations OSRP, OPF, LUN, PA, OET/LNG-Onshore, Aniva Bay Marine, and Pipeline (Onshore). Further discussion required, can this be addressed in the future by the advisory body? SEIC accepts that this issue will go to the WGWAP.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 13.2		Oil spill & gas associated risks	Use and effects of dispersants require further discussion and evaluation, including investigation of the potential toxic effects of dispersants.	SEIC	SEIC has no intention to use dispersants near the WGW feeding area. OSRPs being developed and will include development of protocols for use of dispersants. A risk assessment relating to dispersant use is being conducted. (REF: 29a)		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 14.1		Oil spill & gas associated risks	Monitoring requirements should include a permanent array of monitoring sites and assess benthos/prey, as well as physical and chemical changes over time.	SEIC	SEIC questions the need for permanent stations as the base pipeline route case was not selected. SEIC does not believe prey and physical studies of this nature will have significant value. However SEIC is currently commissioning background hydrocarbon monitoring (2005) and this will continue through operations phase and post spill. SEIC is currently developing spill and post-spill monitoring plans and procedures (29a,b). (REF: 29a,b). This requires further discussion to establish monitoring requirements. This issue may be addressed under the Terms of Reference of the proposed advisory body. SEIC accepts the independent scientists have closed this issue subject to definitions of protocols.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 14.2		Oil spill & gas associated risks	In the event of a spill, investigations will be required to assess direct acute and chronic effects on WGW.	SEIC	SEIC accepts that this issue will go to the WGWAP.		Closed - superseded by a new recommendation
C. IISG	Item 15, p.10 (of IISG report)		Oil spill & gas associated risks	The IISG recommends that IUCN urge UNESCO to make a special effort to ensure that surveys for dead Steller's sea eagles are conducted on both coasts of the Shiretoko Peninsula, and that any carcasses are examined in detail to determine the cause of death. Information from the current spill is of particular interest and value because of the presence of sea ice in the spill area.	IUCN			Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 16, p.10 (of IISG report)		Oil spill & gas associated risks	The IISG recommends that SEIC work with appropriate Russian and Japanese governments to determine the time, place, and source of the oil spill off the coast of Hokkaido late 2005, so that the data and specimens can be used to examine retrospectively the behaviour of the spill and its effects. Such information may prove valuable for modelling oil spill trajectories, and related exercises.	SEIC	SEIC has used its contacts to obtain information about this particular spill and considers it unlikely that more information can be retrieved. It is important to note that because this spill was not connected with Sakhalin II project activities, and because it was concentrated in Japanese waters, the Company had no opportunity for involvement, nor was it called upon for assistance.		Closed - superseded by a new recommendation
C. IISG	Item 17, p.11 (of IISG report)		Oil spill & gas associated risks	Continued work is needed to develop response strategies and methods for oil spilled on or under the ice. The degree to which such oil can be recovered is highly uncertain, but progress has been made by Sakhalin Energy both independently and in concert with other oil and gas companies. Important studies are underway to assess the costs and benefits of burning oil, retrieving it from under the ice, and retrieving it by various technologies (skimmers and mops) from the ice or open leads in the ice. These studies should be continued to maximize the probability of an effective response.	SEIC	Agreed. SEIC will continue its work and also continue to support joint industry initiatives aimed at developing spill prevention, spill management, response systems and equipment for OSR in ice conditions.		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 19, p.11 (of IISG report)		Oil spill & gas associated risks	Response strategies (tiers I, II, and III) must be in place before oil and gas extraction begins and should include training and drills to ensure that all response participants are prepared to carry out their responsibilities effectively if a spill occurs.	SEIC	Strategies will be in place and approved by RF authorities before operations begin. Several detailed oil spill response plans are under development, covering each asset, and are presently undergoing review by both Russian authorities and an independent international oil spill response consultancy. The former will assess compliance with pertinent elements of applicable Russian Law, whilst the latter is assessing the adequacy of the plans against a number of recognised, robust international standards. As part of the OSR planning process, a comprehensive training programme is being developed and implemented. <b>ACTION:</b> Implement RF approved strategies (tier I, II and III) and training programme.	Redacted version of OSR plans to be publicly available from Q1 2007. Training programme to be complete prior to first oil	Closed - superseded by a new recommendation
C. IISG	Item 20, p.11 (of IISG report)		Oil spill & gas associated risks	As described in reports from the September WGW workshop in Vancouver, regular (biweekly) flights are needed to detect leaks from pipelines.	SEIC	SEIC confirms that helicopter flights are planned on a weekly basis to detect any irregularity along the pipelines.	After first oil	Closed - superseded by a new recommendation
C. IISG	Item 21, p.11 (of IISG report)		Oil spill & gas associated risks	Sakhalin Energy should continue the development of models for predicting the trajectory of oil spilled under ice. The IISG agrees that such models are essential and supports their development.	SEIC	Agree. SEIC is and will be continuing this programme.		Closed - superseded by a new recommendation
C. IISG	Item 22, p.11 (of IISG report)		Oil spill & gas associated risks	Response efforts should include protection of Piltun Lagoon and the Piltun feeding area used by WGWs.	SEIC	Agree. Protection of Piltun and other lagoons, and the Piltun whale feeding area, is a primary objective of the Oil Spill Response Plans (OSRPs) covering those areas.		Closed - superseded by a new recommendation
C. IISG	Item 23, p.11 (of IISG report)		Oil spill & gas associated risks	Dispersants should not be used in areas where they may affect WGWs and, particularly, their habitat.	SEIC	Agree. SEIC will not use dispersants in or near WGW feeding areas or in areas where WGWs are observed.		Closed - superseded by a new recommendation
C. IISG	Item 24, p.11 (of IISG report)		Oil spill & gas associated risks	The IISG recommends that, should a spill occur, an assessment team be convened to determine the nature and extent of damage caused by the spill. The assessment team should be independent of the response effort.	SEIC	Agree. This has been incorporated into the offshore OSRPs. It will also be incorporated into the Long-term Monitoring Plan that is being developed. <b>ACTION:</b> Development of Monitoring Plan with further consideration of logistical aspects, particularly if the participation of non-Russian whale experts is intended.	Before first oil	Closed - superseded by a new recommendation
C. IISG	Item 25, p.11 (of IISG report)		Oil spill & gas associated risks	Sakhalin Energy commit to and undertake a long-term environmental monitoring program to determine if undetected leaks and spills are contaminating the environment around or downstream of the platforms and pipelines (see Long-Term Environmental Monitoring above).	SEIC	Additional to the weekly helicopter flights visual surveys are planned annually using Remote Operated Vehicle (ROV) surveys. These ROV surveys will take about a month to cover all offshore pipelines.	After first oil/gas	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/029	WGAP 1/3 - Section 13.0	Oil spill & gas associated risks	The Panel <b>affirms</b> its continued interest in knowing more about the oil spill that occurred in the vicinity of Hokkaido in January 2006 (and considered by the IISG) and <b>requests</b> that both Sakhalin Energy and IUCN make further inquiries and report on progress at the next WGAP meeting.	IUCN/SEIC	IUCN is currently following this up with the Japan Coast Guard and will also be writing to the Ministry for Foreign Affairs and the Japanese IUCN Committee. A progress report will be provided to the WGAP at its next meeting.	Apr-07	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
F. WGAP 2	WGAP 2/019	WGAP 2/3 Section 14.1	Oil spill & gas associated risks	The Panel recommends that IUCN: - determine whether oil on dead birds in 2005 and the winter of 2006/07 can be fingerprinted to establish if it came from the same source; - consider whether archived satellite photographs are likely to provide additional evidence of the source and movement of spilled oil; and - consider preparing a summary report on the Hokkaido spill, after consultation with authorities at the UNESCO World Heritage Site on the Shiretoko Peninsula.	IUCN			Closed - superseded by a new recommendation
F. WGAP 2	WGAP 2/020	WGAP 2/3 - Section 14.2	Oil spill & gas associated risks	The Panel adopts and recommends implementation of the Terms of Reference for a Task Force as prescribed under Item 14.2 of the main body of this report.	SEIC	SEIC agrees to participate in the task force process	Nov-07	Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/010	WGAP 3/3 Section 6.1.1	Oil spill & gas associated risks	Some oil spilled in ice could be released at the late spring thaw, posing a risk to gray whales arriving in the area and therefore requiring further spill response. The Panel <b>recommends</b> that prompt and focussed clean-up response for any remaining oil residues should be a priority to minimise this risk at that time.	SEIC	SEIC will monitor and respond to all oil spills from SEIC facilities to minimise environmental impact.		Open - in progress
G. WGAP 3	WGAP 3/011	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>emphasised</b> the value of a flexible response strategy capable of adapting rapidly to the variety of oil spill scenarios that could arise from Sakhalin II, Phase 2 operations. It therefore <b>expressed support</b> for SEIC's efforts in working with Russian authorities to achieve such flexibility.	SEIC	SEIC continues to work with the authorities.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/012	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The panel <b>encourages</b> active research by SEIC in a number of subject areas and, in particular, <b>recommends</b> research on the toxicity of Vityaz crude oil, the efficacy of in situ burning of oil in ice, detection and response options in ice, and general behaviour of Vityaz crude oil in the conditions characteristic of the Sakhalin marine environment.	SEIC	SEIC has a program for research in 2008 and 2009 that we will share with the WGAP.	Apr-08	Open - in progress
G. WGAP 3	WGAP 3/013	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The panel <b>recommends</b> that studies of the behaviour of Vityaz crude oil in the marine environment be conducted to provide information that will maximize Sakhalin Energy's oil spill response capabilities.	SEIC	This ties in with the research being conducted but is unlikely to include open water trials.		Open - in progress
G. WGAP 3	WGAP 3/014	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>recommends</b> that the oil spill response handbooks be completed and made operational before the initiation of year-round oil production. To be considered operational, all aspects of the handbooks should be ready for application in the event of a spill.	SEIC	The following are completed: Lunskeye, Piltun-Astokh, OPF, Prigorodnoye offshore. To be finalised: Onshore pipeline and Prigorodnoye onshore.		Open - in progress
G. WGAP 3	WGAP 3/015	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>reiterates the previous recommendation</b> for rigorous, systematic collection of baseline information from both Piltun Lagoon and the Piltun feeding area to provide an adequate baseline for measuring the effects of oil and gas operations, including in the event of an oil spill.	SEIC	SEIC will submit the data from the 2007 surveys to the panel, who should advise if this is adequate.	Apr-08	Open - in progress
G. WGAP 3	WGAP 3/016	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>reiterates previous recommendations</b> that opportunistic daily crew-change flights, dedicated weekly flights of the whole pipeline, annual assessment using a subsurface remotely operated vehicle (ROV), ROV assessment after major storm or other events, monthly cleaning pigging, and 5-year intelligent pigging of the pipeline are necessary and that they should be carried out as standard operating procedure for the detection of pipeline leaks.	SEIC	SEIC will review the present status and revert on any updates that may be in place.	Apr-08	Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. WGAP 3	WGAP 3/017	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>recommends</b> that SEIC should maintain its policy of no dispersant use in or near the Piltun feeding area at any time. Under certain circumstances it may be prudent to use dispersant in or near the offshore feeding area, although the Panel anticipates these conditions will be rare and any use of dispersant will require great caution. The Panel <b>recommends</b> that dispersant should not be used when gray whales are present in the offshore feeding area.	SEIC	This is accepted and is already in the OSRP.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/018	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	Under circumstances where response may pose more risk to the whales and their habitat than a lack of response, the Panel <b>recommends</b> that responders be allowed to refrain from recovery efforts in the Piltun feeding area until the oil has moved through the area to the beach where clean-up efforts are more likely to be successful. Doing so could limit the amount of disturbance in the feeding area and, possibly, the amount of oil that is dispersed into the shallow water sediment and associated benthic community. The Panel recognizes that oil on the beach poses a risk to other wildlife and that immediate and careful judgement on the part of responders in choosing response options will be required. However, the Panel also believes that, given the critically endangered status of the WGW population, it must be given the benefit of added consideration and caution commensurate with such status.	SEIC	SEIC will take this into account at the time of a spill.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/019	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>recommends</b> that surf-washing and prop-washing be removed from oil spill response plans as applied to the Piltun area.	SEIC	Agree. Plans will be updated to reflect this.	Jun-08	Open - in need of clarification/expansion
G. WGAP 3	WGAP 3/020	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>recommends</b> that hazing not be attempted with WGWs until procedures have been evaluated and found to be safe and reasonably effective.	SEIC	Agree.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/021	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	To avoid secondary problems of contamination, the Panel <b>recommends</b> that handling, storage and disposal procedures for oil spill clean-up waste are fully developed prior to the initiation of year-round oil production.	SEIC	SEIC has RF requirements to meet in this regard.		Open - in need of clarification/expansion
G. WGAP 3	WGAP 3/022	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	In view of the difficulty associated with getting an assessment team on site, and the likelihood of added strain on logistical operations and other resources, the Panel <b>rescinds</b> the previous recommendation that an independent assessment team be present to monitor response activities in the event of a spill. The Panel <b>recommends</b> , however, that all aspects of spill response be carefully documented to ensure rigorous post-spill analysis to identify ways in which strategies might be improved.	SEIC	Agree that this should be done.		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/023	WGAP 3/3 Section 6.1.6	Oil spill & gas associated risks	The Panel <b>recommends</b> that any damage to the wetlands, lagoons, beaches and dunes of the Piltun ecosystem be addressed by restoration efforts as soon as possible following spill response activities.	SEIC	Agree. The appropriate section from the onshore plan will be included in the offshore plan.	Jun-08	Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. WGAP 3	WGAP 3/024	WGAP 3/3 Section 6.1.7	Oil spill & gas associated risks	The Panel's discussion focussed on short-term and long-term post-spill monitoring of whales. Short-term monitoring, occurring in the days and weeks immediately following a spill event, <b>should include</b> : <i>Surveys to document whale distribution</i> : short-term patterns of post-spill distribution should be compared with the following: (a) existing data on whale distribution under non-spill (pre-spill) conditions; (b) observed movement of spilled oil; (c) information on various types of acoustic disturbance associated with response effort; (d) information on the location and extent of incorporation of spilled oil into the benthos in feeding areas.	SEIC	SEIC will look into how best to put this in place and revert to the WGAP. This could include the possibility of training and mobilising local people to collect distribution data and to carry focal follows. Surveys for dead whales will be part of the response events		Open - in progress
G. WGAP 3	WGAP 3/024	WGAP 3/3 Section 6.1.7	Oil spill & gas associated risks	<i>Focal follows to evaluate whale behaviour</i> : observations should be recorded on the following: (a) behaviour of whales in the presence of floating oil, including assessments of the ability and inclination of whales to avoid contact with oil; (b) general behavioural patterns of whales (for comparison with data collected during non-spill conditions); (c) changes in whale behaviour associated with spill response activities such as operations of oil recovery vessels and deployment of containment booms; (d) patterns of whale behaviour in the vicinity of areas with known contamination of benthic prey by spilled oil.	SEIC	SEIC will look into how best to put this in place and revert to the WGAP. This could include the possibility of training and mobilising local people to collect distribution data and to carry focal follows. Surveys for dead whales will be part of the response events		Open - in progress
G. WGAP 3	WGAP 3/024	WGAP 3/3 Section 6.1.7	Oil spill & gas associated risks	<i>Surveys for dead whales</i> : searches for dead whales should be carried out both on shore and on the water. Any dead whales located <i>must</i> be evaluated, at a minimum, as follows: (a) characterization of freshness of carcass; (b) description of pattern of oil coverage on the exterior surfaces of the carcass, in the eyes, in the mouth and in the baleen; (c) sampling of skin for genetic characterization; (d) photography of the animal for matching it to identified individuals in the existing photo-ID catalogues and for illustrating the extent of contact with oil.	SEIC	SEIC will look into how best to put this in place and revert to the WGAP. This could include the possibility of training and mobilising local people to collect distribution data and to carry focal follows. Surveys for dead whales will be part of the response events		Open - in progress
G. WGAP 3	WGAP 3/025	WGAP 3/3 Section 6.1.7	Oil spill & gas associated risks	If carcasses are found in the water, they need to be towed to locations where detailed post-mortem examinations can be carried out. Carcasses found stranded or brought ashore must be examined in detail by personnel with appropriate expertise. The Panel <b>recommends</b> the development of priority-ranked post-mortem guidelines to optimise the quality and amount of information collected from carcasses. This should include the acquisition of data on tissue contamination by oil.	SEIC	SEIC is legally obliged to cooperate with the relevant Russian authorities and their specialists that include veterinarians to conduct or consult on the samples from carcasses. SEIC will approach relevant authorities on this issue.		Open - in progress

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. GWAP 3	WGWAP 3/026	WGWAP 3/3 Section 6.1.7	Oil spill & gas associated risks	The Panel <b>recommends</b> that long-term monitoring of whales following an oil spill, in the several years following a spill event, should largely resemble the monitoring of GWGs that has been conducted in the project area in recent years by SEIC and the Russia-US project. As with short-term studies, the primary foci for long-term work should be distribution, behaviour and carcass assessment. To contribute to understanding of long-term effects of oil spill events, existing protocols for whale monitoring should, in the event of a spill, be amended to incorporate the following: (a) Increased effort to study whale distribution and behaviour in areas known to have been subject to significant oiling; (b) Increased effort to study whale distribution and behaviour in areas known to have been subject to significant spill response activity (e.g. vessels, boom deployment and related activities); (c) Increased effort to study whale distribution and behaviour in areas where benthic communities are known to have been subject to significant oil exposure.	SEIC	SEIC understands the need to have some long term monitoring post an oil spill that has the potential to impact GWGs and will identify what needs to be develop now to facilitate this		Open - in progress
G. GWAP 3	WGWAP 3/027	W GWAP 3/3 Section 6.1.7	Oil spill & gas associated risks	The Panel <b>recommends</b> that existing studies of GWG distribution, behaviour and carcass evaluation in non-spill environments should be maintained to ensure that appropriate baseline information (including natural variation) is available. Modified long-term studies following oil spill events should be <i>in addition to</i> , rather than in place of, established, ongoing studies. It also may be useful and informative to sample both living and dead gray whales in the vicinity of a previous spill (recent or relatively long-past) to determine levels of contaminants (e.g., polycyclic aromatic hydrocarbons) in tissues.	SEIC	SEIC is committed to the monitoring of the GWGs. SEIC will review the possibility of doing biopsies on living whales and if agreed approach RPN for permission to do so in the event of an oil spill. A protocol has to be developed for this and SEIC will seek WGWAP approval and advice on this with regard to impacting the GWGs.		Open - in progress
G. GWAP 3	WGWAP 3/028	WGWAP 3/3 Section 6.2	Oil spill & gas associated risks	The Panel <b>requests</b> that SEIC provide a clear statement as to what the "redacted" documents referred to in WGWAP 3/INF.13 are.	SEIC	SEIC are currently reviewing this and will revert to the WGWAP.		Open - in need of clarification/expansion
H. GWAP 4	WGWAP 4/016	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	The Panel <b>recommends</b> that it be provided with the information on aromatic hydrocarbons detailed in the report (Section 11.2).	SEIC	SEIC will review the information and provide details to the Panel.	Aug-08	Open - no action yet taken
H. GWAP 4	WGWAP 4/017	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	The Panel <b>recommends</b> that updated information on aromatic content, emulsification properties, wave tank or at sea experiments, in-situ burning and biodegradability, as well as updates on any relevant ongoing studies and their expected completion times, be provided for review at WGWAP-5.	SEIC	SEIC will review and provide available information to the Panel.	Aug-08	Open - no action yet taken
H. GWAP 4	WGWAP 4/018	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	The Panel <b>recommends</b> that SEIC provide for WGWAP-5 an update on: modelling of spills in the Aniva Bay area (including by vessels approaching from the east) in relation to (a) the GWG feeding areas and (b) plausible GWG migration routes, and (c) the potential for increased risks associated with any predicted changes in ship traffic patterns.	SEIC	Scope and cost estimate for additional modelling will be developed by SEIC and agreed with Panel prior to proceeding.	Dec-08	Open - no action yet taken
H. GWAP 4	WGWAP 4/019	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	The Panel therefore <b>recommends</b> that formal arrangements to use other vessels and provide relevant training for their crews be put in place by SEIC.	SEIC	Formal arrangements and training will be further developed.	Dec-08	Open - no action yet taken
H. GWAP 4	WGWAP 4/020	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	The Panel <b>requested</b> that further information on exercises be provided prior to WGWAP-5, including a list of those remaining in 2008 and planned for 2009 along with brief written reports on the completed exercises identifying lessons learned.	SEIC	Offshore exercises carried out between WGWAP 4 & 5 will be reported.	Dec-08	Open - no action yet taken

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
H. WGWAP 4	WGWAP 4/021	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	Revised versions of the plans had been provided for comment recently to the advisers for potential lenders (PCCI) and the Panel <b>recommends</b> that these be provided to the Panel for its review and comment.	SEIC	Revised versions will be provided to WGWAP.	Jul-08	Open - no action yet taken
H. WGWAP 4	WGWAP 4/022	WGWAP 4/4 - Section 11.2	Oil spill & gas associated risks	SEIC reported that waste-disposal issues were being negotiated with Sakhalin Oblast. The proposed site at Smyrnik has been established; it is designed to accommodate 50,000m <sup>3</sup> of oily waste. The site is located between Yuzhno and Nogliki. A second site in the southern part of the island is currently under negotiation with Sakhalin Oblast. The Panel welcomed these developments and <b>requests</b> that regular updates be provided at future Panel meetings.	SEIC	SEIC is managing waste through onshore facilities and this will not impact WGW.		Open - no action yet taken
C. IISG	Item 1, p.3 (of IISG report)		Photo ID	Continuation of the Russia-US Photo-ID research programme.	SEIC	This is an independent programme, which is externally funded and does not require an action from SEIC.		Closed - implemented/resolved satisfactorily
C. IISG	Item 3, p.5 (of IISG report)		Photo ID	Integration of photographs and data of both the Russia-US and IBM Photo-ID research programs, after they have passed through appropriate quality control procedures. This would enable more precise estimation of the population developments and might decrease any duplication of field efforts that potentially exposes the whales to unnecessary disturbance from research.	All research groups	SEIC agrees this initiative could provide more information on the western gray whale population status. Approval from all parties involved is needed to further this effort. <b>ACTION:</b> SEIC will contact key parties to take this forward.	Jun-06	Closed - superseded by a new recommendation
G. WGWAP 3	WGWAP 3/033	WGWAP 3/3 Section 8.1	Photo ID	The Panel <b>endorses</b> the findings and recommendations of the Task Force and <b>requests</b> that SEIC, the two photo-ID research teams, and other relevant parties implement the recommendations as expeditiously as possible.	SEIC and others			Closed - superseded by a new recommendation
G. WGWAP 3	WGWAP 3/034	WGWAP 3/3 Section 8.9	Photo ID	The Panel <b>recommends</b> that the Task Force should continue its work according to the revised terms of reference.	Photo-ID Task Force			Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 98		Population assessment	The Panel's review identified the following general areas of future research: Annual monitoring of gray whale foraging and habitat use patterns, including prey, habitats and variability in foraging patterns over space and time – the resultant time series of data may identify changes in habitat correlated with certain development activities.		SEIC is currently undertaking this work and is planning to continue this in future years.		Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/002	WGWAP 1/3 - Section 4.2	Population assessment	The Panel <b>recommends</b> that from this year onwards, certain simple statistics from photo-identification studies be reported by Sakhalin Energy as routine information after each field season, including: field effort, number of different whales sighted and identified, number of identified females and males sighted, number of calves, number of 'new' whales, number of mother-calf pairs, number of skinny whales, and any known deaths. The Panel also looks forward to receiving the detailed analysis of the 'skinny' whale issue being undertaken by the Russia-USA team.	SEIC	Such statistics have been provided every year in MNR report. 2006 statistics will be a part of the report due by Mar 31 2007.	31.03.07	Closed - implemented/resolved satisfactorily
E. Vladivostok	WGWAP/Vlad-02	WGWAP 1/006	Population assessment	The Panel recommends that the integrated, effort-corrected data on western gray whale distribution for <u>all years available</u> and for all platforms (shore, vessel, aerial) be calculated on a weekly basis and provided as a document for the St. Petersburg WGWAP meeting. These distribution data should then also be overlain on the acoustic footprint for the corresponding periods (see Recommendation 3).	SEIC		15.04.07	Closed - superseded by a new recommendation
G. WGWAP 3	WGWAP 3/007	WGWAP 3/3 Section 5.1	Population assessment	The Panel <b>recommends</b> that steps be taken to facilitate use of the combined data in a population assessment.	Photo-ID Task Force			Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. WGAP 3	WGAP 3/008	WGAP 3/3 Section 5.3	Population assessment	The Panel <b>recommends</b> that a preliminary analysis be carried out on the possible effects of disturbance on reproductive success or other aspects of demography.	Panel			Closed - superseded by a new recommendation
G. WGAP 3	WGAP 3/009	WGAP 3/3 Section 5.3	Population assessment	The Panel <b>recommends</b> , as suggested by the Photo-ID Task Force, that data on body condition be incorporated into a population assessment if possible.	Panel			Closed - superseded by a new recommendation
A. ISRP	ISRP Report, p. 37		Pulse noise	In summary, there are two critical scientific information gaps related to the noise field that western gray whales experience from multiple sources: (1) inability to accurately model and predict received levels from multiple (or single noise sources in shallow-water environments, and (2) uncertainty regarding what aspects of the noise signal (e.g. the saliency of the signal) would be disturbing to a gray whale.		(1) Through the validation document of the acoustic model SEIC believes that the modelled RL from multiple sources is accurate enough to do predictions on the RL from construction activities (2) This second concern is difficult to assess under field conditions as a lot of factors will influence the reaction of the whale. SEIC feels that the available data on gray whale responses that come from tests with sounds similar to the construction sounds, are representative enough to do predictions on gray whale reactions.	May-05	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
F. WGAP 2	WGAP 2/017	WGAP 2/3 Section 12.2	Pulse noise	The possibility of conducting on-ice seismic surveys when the whales are absent was discussed. The Panel recommends that the feasibility of this comparative approach be evaluated (see Annex 6).	SEIC	Seismic operations in broken, moving ice are beyond the limits of current seismic technology.	31-Aug-07	Closed - implemented/resolved satisfactorily
F. WGAP 2	WGAP 2/018	WGAP 2/3 Section 12.2	Pulse noise	Any and all agencies (e.g., Sakhalin State Government) that might have information on seismic surveys planned for 2008 on the Sakhalin shelf should be approached by both Sakhalin Energy and IUCN to ensure that management decisions to protect western gray whales are fully informed.	SEIC	SEIC will approach Sakhalin oblast authorities on the provision of the information about seismic surveys planned for 2008.	30-Sep-07	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
G. WGAP 3	WGAP 3/035	WGAP 3/3 Section 9.3	Pulse noise	The Panel <b>recommends</b> that a table of the estimated directional profile of sound energy (for example, sound levels at 5° or finer intervals around the clock, at a fixed nominal distance from the array) be prepared and circulated to the Task Force.	SEIC	SEIC will make available to the Task Force the frequency dependent directional profiles of sound energy generated by the airgun array model, in the format that is used by the Company's acoustics consultants for all acoustic footprint modeling and SEL estimations.	Mar-08	Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/036	WGAP 3/3 Section 9.4	Pulse noise	The Panel <b>recommends</b> that the Seismic Surveys Task Force be reconstituted with the revised terms of reference and working approach given in Annex 5.	Seismic Survey Task Force			Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/037	WGAP 3/3 Section 10.1.2	Pulse noise	In view of the information and concerns outlined in sections 10.1.1 and 10.1.2 of the report, the Panel <b>recommends</b> that SEIC should make every reasonable effort to ensure that full-scale acoustic and behaviour monitoring of the Piltun feeding area takes place in 2008.	SEIC	SEIC plan to monitor sound levels and behaviour in 2008 at the same locations as in previous years. The scope of work is being finalised for 2008 but will be for approximately 75 days	Apr-08	Open - in need of clarification/expansion
G. WGAP 3	WGAP 3/038	WGAP 3/3 Section 10.1.2	Pulse noise	In view of this, the Panel <b>noted</b> that the only potentially available source of information on noise levels generated by non-SEIC operations in 2008 would likely be from independent monitoring efforts sponsored by NGOs, and <b>requested</b> that IUCN make contact with SUCH GROUPS regarding the possibility of obtaining information.	IUCN	IUCN has written to both IFAW and WWF-Russia requesting clarification of their intentions regarding research and monitoring in 2008.	Apr-08	Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. WGAP 3	WGAP 3/039	WGAP 3/3 Section 10.2	Pulse noise	The Panel recalls that the effects of seismic surveys on GWGs have been studied on at least three previous occasions (Weller et al. 2006a, 2006b; Gailey et al. 2007), and the Panel <b>recommends</b> that the results from all three studies should be carefully considered by the Task Force.	Seismic Survey Task Force			Closed - implemented/resolved satisfactorily
H. WGAP 4	WGAP 4/013	WGAP 4/4 - Section 10.2	Pulse noise	In discussion, the Panel noted that for the sake of transparency, there would be value in having an independent observer nominated by the Panel present on the seismic vessel during the survey. While recognising that there may be logistical difficulties, the Panel <b>recommends</b> that SEIC investigate this possibility and report back to the Panel by WGAP-5.	SEIC	SEIC will investigate the possibility of having an independent observer nominated by the Panel present during the survey.	Dec-08	Open - no action yet taken
H. WGAP 4	WGAP 4/014	WGAP 4/4 - Section 10.2.3	Pulse noise	The Panel <b>agreed</b> that there was merit in the idea that a small group, including Racca, Nowacek and Vedenev, would jointly consider the result of the calibration exercise during the 'window'. It was further <b>agreed</b> that any details of how this might be undertaken in practice could be discussed at WGAP-5 and the Panel <b>requested</b> that those individuals provide a discussion document for consideration at that meeting.	SEIC/WGWAP	SEIC is open to discussion with the WGWAP on how a process of independent examination of the results of the initial sound source verification (SSV) could be undertaken in practice. In the interest of timely and effective completion of the SSV, the acquisition and processing of the data will under any circumstances be performed by SEIC appointed scientific personnel according to established and openly documented best practices.	Dec-08	Open - no action yet taken
H. WGAP 4	WGAP 4/015	WGAP 4/4 - Section 10.2.4	Pulse noise	The Panel <b>recommends</b> that Constantin Avilov be asked to perform further work according to the rationale and specifications detailed in the report.	IUCN/Russian team		Sep-08	Open - in need of clarification/expansion
D. WGAP 1	WGAP 1/013	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel <b>requests</b> that a report on tagging work undertaken on gray whales off Chukotka in the summer of 2006 be made available to it as soon as possible.	SEIC	This was on Eastern Gray Whales and will be made available as soon as it's complete.	Apr-07	Closed - implemented/resolved satisfactorily
D. WGAP 1	WGAP 1/014 (a)	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (a) It be under the direction of Bruce Mate using his tags;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/014 (b)	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (b) It be restricted to 'non-skinny' males and take into account the occurrence of males with rare and common haplotypes when the final tagging protocol is adopted;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/014 (c)	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (c) Bruce Mate submits to the Panel, for review, a detailed experimental protocol including measures to be taken to minimise the possibility of accidental injury or stress to the animals, and a proposal on sample size in terms of attempts as well as successful attachments;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/014 (d)	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (d) A formal report is submitted to the Panel by the vet who determined the cause of death of the gray whale in Bruce Mate's Mexican study (see WGAP 1/INF.12);	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGAP 1	WGAP 1/014 (e)	WGAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (e) The Panel receives and considers the report of the Society for Marine Mammalogy's workshop on whale tagging;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. WGWAP 1	WGWAP 1/014 (f)	WGWAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (f) Experience from around the world on safeguards for the process (e.g. number of approaches allowed per day or other unit of time, total time spent with a particular animal) has been reviewed by the Panel;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/014 (g)	WGWAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (g) Efforts have been made by the Panel to arrange contacts with appropriate range-state scientists for possible follow-up work;	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/014 (h)	WGWAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (h) A final recommendation on protocols, time in the season to attempt tagging and sample size is not made until after consideration of the results of (c) – (g) and taking into account the view of the IWC Scientific Committee at its forthcoming meeting in Anchorage in May 2007; and	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/014 (i)	WGWAP 1/3 - Section 10.0	Satellite tagging	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that: (i) Weekly positional updates from transmitting tags are made available to the Panel (while maintaining the usual rights of data owners).	Joint responsibility	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.	Apr-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/015	WGWAP 1/3 - Section 10.0	Satellite tagging	In view of the provisos listed in Recommendation WGWAP 1/014, the Panel <b>recommends</b> that the tagging work does not take place until the 2008 season, noting that this has the additional advantage of an anticipated lower level of industrial activity in the Sakhalin region (at least with respect to Sakhalin-II).		Agree		Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 60		SEIC work plan	For the PA-B platform at the current stage, the HSE case has not yet been completed. Until this document is completed, it is not feasible to evaluate the likely effectiveness of the proposed system or to accept assurances regarding prevention and response strategies.	SEIC	The HSE Case for PA-B was not finalised at the time of publishing the CEA.	Dec-05	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 17.1		SEIC work plan	Need ALARP demonstration for PA-B location. A position paper was disseminated prior to Gland by SEIC, but some experts found that paper provided insufficient information and others questioned shallow gas risks based on review of position paper. This issue was further discussed at Gland with additional detail presented by SEIC. Some experts requested an independent appraisal and the lenders noted that an independent review of the PA-B site selection has been undertaken by consultants on behalf of the potential lenders. The rationale for the chosen location needs to be fully documented, as this decision is a key determinant of the level of risk to gray whales and their Piltun foraging area.	SEIC	The PA-B position paper issued prior to Gland (12). The main issues relate to shallow gas risks, seabed integrity and reservoir access within technical constraints. The GCA report provides independent technical confirmation of the suitability of the site (25). (REFS: 12, 25). Final views/discussions still required to confirm that this is a closed issue and provide clear documentation for the chosen site. Review of location justification by lenders' independent expert may help resolve this issue.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 17.2		SEIC work plan	HSE Case for PA-B not provided.	SEIC	HSE case planned for 2005. Need to discuss what of significance may be presented in the HSE Case? See issues 11.1 and 11.4.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. WGWAP 1	WGWAP 1/001	WGWAP 1/3 - Section 3.0	SEIC work plan	The Panel <b>requests</b> that Sakhalin Energy prepare a schedule of its work for at least the next five years – this should include the construction and operations schedule, the research and monitoring plans and the times when decisions will be taken. As well as confirmed activities, it should indicate all anticipated or likely events, such as seismic testing. In addition, the Panel <b>requests</b> that Sakhalin Energy establish a standard practice of keeping it informed of its plans, through IUCN, without the Panel having to request such information repeatedly.	SEIC	Program sent to IUCN		Closed - superseded by a new recommendation
E. Vladivostok	WGWAP/Vlad-01 (1)	WGWAP 1/001	SEIC work plan	The WGWAP has reviewed the General Timeline (Work Schedule) for 2007-2011 provided by Sakhalin Energy after WGWAP-I. Although this document represents a start, it falls short of meeting the need for advance information, as described in the report of WGWAP-I. The Panel therefore recommends that the following concerns be addressed by the company, in documentation for the St. Petersburg meeting: (1) It appears that Sakhalin Energy does not intend to continue monitoring and studying whale behaviour past the 2007 season. This would mean truncation of a valuable time series of data. The Panel requests clarification on whether the decision to end such work after 2007 is final or contingent, and if the latter, on what?	SEIC		15.04.07	Closed - superseded by a new recommendation
E. Vladivostok	WGWAP/Vlad-01 (2)	WGWAP 1/001	SEIC work plan	The WGWAP has reviewed the General Timeline (Work Schedule) for 2007-2011 provided by Sakhalin Energy after WGWAP-I. Although this document represents a start, it falls short of meeting the need for advance information, as described in the report of WGWAP-I. The Panel therefore recommends that the following concerns be addressed by the company, in documentation for the St. Petersburg meeting: (2) No mention of seismic testing is indicated in the schedule. Does this mean that the operational phase of Sakhalin-II can and will proceed (through 2008-2011) without accompanying seismic work? If seismic testing is necessarily associated with particular aspects of future operations (e.g. drilling), this should be noted in the schedule where appropriate, perhaps with caveats or provisos regarding uncertainty (e.g. stating that plans are only tentative and timing may not be exact). A thorough discussion of this issue, with associated recommendations, should be expected at the St. Petersburg meeting.	SEIC		15.04.07	Closed - superseded by a new recommendation
E. Vladivostok	WGWAP/Vlad-01 (3)	WGWAP 1/001	SEIC work plan	The WGWAP has reviewed the General Timeline (Work Schedule) for 2007-2011 provided by Sakhalin Energy after WGWAP-I. Although this document represents a start, it falls short of meeting the need for advance information, as described in the report of WGWAP-I. The Panel therefore recommends that the following concerns be addressed by the company, in documentation for the St. Petersburg meeting: (3) No reference is made to satellite tagging of western gray whales. Again, the Panel requests clarification on whether this reflects a final decision by Sakhalin Energy not to pursue this important aspect of research, or instead is contingent on the outcome of further discussions and analyses.	SEIC		15.04.07	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
E. Vladivostok	WGWAP/Vlad-01 (4)	WGWAP 1/001	SEIC work plan	The WGWAP has reviewed the General Timeline (Work Schedule) for 2007-2011 provided by Sakhalin Energy after WGWAP-I. Although this document represents a start, it falls short of meeting the need for advance information, as described in the report of WGWAP-I. The Panel therefore recommends that the following concerns be addressed by the company, in documentation for the St. Petersburg meeting: (4) Although the "2007 Details" section of the document provides an indication of the time window within which each activity (for PA-A, PA-B and Lun-A) is to be completed, at least some of the activities will involve noise production only sporadically or for a portion of the time window while others may involve noise during the entire period. The Panel requests more details in regard to actual timing and duration of noise-producing activities. For each activity, we wish to know specific work planned (steps involved such as, for the PA-B topsides installation, the setting of dead anchors, movement of the topsides barge from offshore, etc.), numbers and types of vessels involved (names if possible), and noise footprint of	SEIC		15.04.07	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
E. Vladivostok	WGWAP/Vlad-01 (5)	WGWAP 1/001	SEIC work plan	The WGWAP has reviewed the General Timeline (Work Schedule) for 2007-2011 provided by Sakhalin Energy after WGWAP-I. Although this document represents a start, it falls short of meeting the need for advance information, as described in the report of WGWAP-I. The Panel therefore recommends that the following concerns be addressed by the company, in documentation for the St. Petersburg meeting: (5) The Panel recognizes that the early start of construction activities reflects, at least in part, the company's effort to respond to previous recommendations concerning spatial and temporal separation of noisy operations from areas and times of peak whale density. A drawback of such early start-up, however, is that due to SEIC's policies and priorities with regard to logistics, manpower etc., there is no assurance that monitoring equipment and personnel will be in place and functioning well in advance of construction in order to collect baseline information. Such baseline information is essential for "real time" assessment and mitigation of the potential effects of industrial activities related to oil and gas	SEIC		15.04.07	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
F. WGWAP 2	WGWAP 2/010	WGWAP 2/3 Section 7	SEIC work plan	While the Panel was pleased to learn at the meeting that Sakhalin Energy considers the present situation (with regard to provision of advance information on decisions and plans) unacceptable, this acknowledgement must be translated into action as soon as possible.	SEIC	SEIC will generate a document further developing the general outline of the construction, operation and research plans that was provided to the panel earlier.	15-Jun-07	Closed - implemented/resolved satisfactorily
H. WGWAP 4	WGWAP 4/023	WGWAP 4/4 - Section 12.1	SEIC work plan	The Panel <b>recommends</b> that more programme resources be devoted to the development and completion of integrated multi-year analyses.	SEIC	This is part of the Scientific Committee. A full scope and costing needs to be developed to assess this recommendation.		Open - no action yet taken
H. WGWAP 4	WGWAP 4/024	WGWAP 4/4 - Section 12.1	SEIC work plan	The Panel <b>recommends</b> that Larsen, in cooperation with the Panel and SEIC, co-ordinates the development of a proposal as to how such a review can be undertaken, to be presented at WGWAP-5.	SEIC	All technical details are available in the final reports, and SEIC will further contribute where resources allow.		Open - no action yet taken
H. WGWAP 4	WGWAP 4/025	WGWAP 4/4 - Section 12.2	SEIC work plan	The Panel therefore <b>recommends</b> that SEIC provide support (e.g. financial, logistical), through a well-established program such as the JIP, for one or more CEEs involving airgun noise and eastern gray whales in a feeding area.	SEIC	SEIC has for several years contributed substantial financial resources to JIP, but has no authority to direct the allocation of JIP funds.		Open - no action yet taken

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
A. ISRP	ISRP Report, p. 42		Traffic & MMO	Beginning in March 2005, vessel traffic in Aniva Bay will increase as vessels begin delivering supplies and equipment to Korsakov for construction of the oil and LNG terminal at Prigorodnoye. The collision risk to gray whales posed by this new traffic was not addressed with any degree of rigour in the documents received from SEIC.		Collision risk for WGW in Aniva Bay is not considered a real issue as they do not occur there. The issue is with increased ship traffic in La Perouse Strait during WGW spring and autumn migration.	Mar-05	Open - in need of clarification/expansion
A. ISRP	ISRP Report, p. 43		Traffic & MMO	The zones of sensitivity outlined in the Marine Mammal Protection Plan are mentioned but not defined in the CEA (Section 6.2.2), so the status of this proposed mitigation measure is uncertain.		At the time of the CEA the development of these mitigation measures was discussed with all parties involved and was work in progress.	Mar-05	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 44		Traffic & MMO	Observer programmes such as those proposed by SEIC to prevent collisions with western gray whales have another important limitation, unless those observers are truly independent. Any observer working for a company that stands to lose large amounts of work time (and money) when whales are sighted is subject to a clear conflict of interest. Assuming that an observer in such circumstances will be able to maintain appropriate vigilance and judgement is more an act of faith than reason. Whether true or not, the observer may anticipate that full and accurate reporting would place his/her livelihood at risk. Thus, observer programmes require independent oversight or verification of compliance to ensure their effectiveness.		SEIC has been using MMOs successfully since 2003. During the seismic survey in 2003 eight shutdowns and 10 occurrences of preventative measures were implemented when there was reason to suspect that whales may be present. SEIC has confidence in the integrity of the marine mammal scientist they use for the program.	May-05	Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
A. ISRP	ISRP Report, p. 44		Traffic & MMO	SEIC proposes to limit vessel speeds in the nearshore and offshore feeding grounds to 5 knots at night and during periods of reduced visibility, and to 7 knots during daylight with good visibility conditions. However, it is not clear how visibility is to be judged.		This comment has been taken into consideration and will be updated in 2005 Marine Mammal Protection Plan.	Apr-05	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 45		Traffic & MMO	A possible means to minimise risk of collisions for ships departing Prigorodnoye would be to route them immediately offshore from the southwestern tip of Sakhalin and then plot the lane through La Perouse Strait equidistant from each coast to minimise the amount of time spent transiting close to shore. While this route may add a small amount of time to the total transit, it could be applied only seasonally when the whales migrate through the area.		The issue is with increased ship traffic in La Perouse Strait during WGW spring and autumn migration is recognised by SEIC.	Mar-05	Closed - implemented/resolved satisfactorily
A. ISRP	ISRP Report, p. 98		Traffic & MMO	The Panel's review identified the following general areas of future research: Recording and monitoring of whale/ship encounters (including strikes, near misses and safe avoidance) to determine if adjustments are needed to vessel traffic based on ship size, location, speed, daylight or other pertinent variables.		Is being done under the MMO program. Special forms exist to report such incidents.	May-05	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 10.1		Traffic & MMO	Independent monitoring and oversight is required. Monitors or observers are subject to conflicts of interest and a range of pressures that may compromise their independence and objectivity. In their written responses to documents for the Gland workshop, experts identified the need for greater information/ discussion on the MMO programme (e.g. objectives, methods, effectiveness, independent oversight), and emphasized the need to use suitably experienced MMOs. The need to avoid these problems may be addressed by the advisory body (see below).	SEIC	Terms of Reference for an advisory body and associated practical monitoring advice are being developed. Marine Mammal Observers are on separate contracts to vessels to ensure that there is no conflict of interest (28, 30). SEIC commissioned an independent review/audit of the Marine Mammal Observers programme (July 2005) and has responded to the recommendations issued by that audit (28, 30). Some changes recommended by the audit are being implemented this year (see current Marine Mammal Protection Plan), while the remainder will be implemented for the 2006 season. (REFS: 28, 29b, 30). Audit recommendations on the Marine Mammal Observers programme are being implemented. SEIC accepts that this issue will go to the GWAP.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 10.2		Traffic & MMO	The principal focus for avoiding collisions should be on spatial separation (e.g. use of vessel lanes). Greater specificity is required for vessel routes and speed restrictions (including criteria for "low visibility"), including the area between the feeding grounds during the construction period and tanker routes from Aniva Bay during operation. SEIC should not rely solely on onboard observers due to observation limits (e.g. can only see animals at the surface, visibility impaired by fog, rough seas, low light). Expert response to SEIC Issue Table and Marine Mammal Protection Plan 2005 included concerns over: - proposed vessel speed limits; - procedures when travelling parallel to GWG; - corridors for vessels leaving Aniva Bay; - definition of protection and feeding zones; - protection of transit routes between feeding grounds; and - enforcement (see also issue above). Participants at Gland discussed the possibility and importance of working with other operators in the region on this issue.	SEIC	Marine Mammal Protection Plan 2005 defines the Chaivo and Piltun feeding grounds as protection zones (8, 29b) and includes a statement of all mitigation measures to be used. WGW migration routes are not sufficiently understood to define (see also oversight issue below) however the offshore navigational corridors were selected to avoid the nearshore zone that migrating whales are expected to be using; higher speed limits are used in the navigational corridors as gray whales are expected to be absent from those areas (30). Vessel navigation and construction corridors are defined between the LNG/OET site, the 3 offshore platforms and along the offshore pipeline route (Alternative 1). The MMPP 2005 defines speed limits as follows: Visibility >1km: 17kts (navigational corridors), 10kts (construction corridors), 7kts (feeding areas) Visibility <1km/nighttime: 17kts (navigational corridors), 7kts (construction corridors), 5kts (feeding areas). All vessels are tracked using the Vessel Tracking System (27, 32) that allows real time position and speed to be audited. Few vessels used by SE		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 10.3		Traffic & MMO	Due to the potential for collisions, there is a need for recording and monitoring of whale/ship encounters (including strikes, near misses, and safe avoidance) to determine if adjustments are needed to vessel traffic based on ship size, location, speed, daylight, or other pertinent variables. (Subsumed to 10.1) There is a need for real-time surveillance to keep track of the distribution of gray whales and to make this information available to vessels traversing the area. SEIC will make communication of realtime observations to vessel traffic explicit in MMPP (Closed) In addition, surveys are needed at regular intervals during the open-water season along the eastern Sakhalin coast to detect stranded gray whales (or floating carcasses), coupled with a serious effort to investigate cause of death whenever a dead gray whale is found. Opportunistic surveys (Confirm every good weather flights from Okha to Pitun??) – is this OK?? If found need to identify if WGW, photo and genetic sample.	SEIC	The Vessel Tracking System (27, 32) used by SEIC provides real time vessel location data. The reporting of all incidents of whale-vessel encounters is mandatory (8). Marine Mammal Observers on vessels report sightings daily and communicate with other vessels if needed (8, 30). Marine Mammal Observers report all instances of mitigation measures begin used and this information is reviewed and the mitigation measures are adapted if needed (30). All floating or stranded gray whales in the SEIC project area are reported and SEIC will cooperate with the relevant Russian agencies to respond if requested (8, 30). (REFS: 8, 27, 30, 32). SEIC accepts that this issue will go to the WGWAP.		Closed - superseded by a new recommendation
B. Lenders	Vancouver I workshop report, issues table 10.4		Traffic & MMO	Sighting information services for vessels is recommended.	SEIC	SEIC is currently using an online Vessel Tracking System (27, 32) that allows position tracking of vessels by satellite (8). (REFS: 8, 27, 32)		Closed - implemented/resolved satisfactorily
B. Lenders	Vancouver I workshop report, issues table 7.1		Traffic & MMO	Observer programmes require independent oversight or verification of compliance to ensure their effectiveness. See also Issue 18.1 details. Independent monitoring is required. This might be addressed by the advisory body (issue 18.1).	SEIC	Development of Terms of Reference for an advisory body are underway with an IUCN committee. Until such time as that body is established, SEIC, on an annual basis, will work with the IUCN to develop an annual workshop that will invite representatives from all of the WGW range states. The first meeting of this workshop will be in March 2006. An independent external audit (28) of the Marine Mammal Observers programme was undertaken in June 2005 and a report issued in July. SEIC has responded to the recommendations made in that audit (REFS: 28, 30). Awaiting Terms of Reference for advisory body function for discussion. SEIC has implemented recommendations that arose out of the Marine Mammal Observers Audit. SEIC accepts that this issue will go to the WGWAP.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
B. Lenders	Vancouver I workshop report, issues table 9.1		Traffic & MMO	Collisions of whales with vessels may cause injury and mortality and are an issue of concern. A quantitative assessment is needed to better characterize this risk and identify sources of risk that can be reduced by mitigation measures. The assessment must include an evaluation of the expected effectiveness of the mitigation measures. The assessment should encompass construction and operation phases off northeastern Sakhalin as well as tanker vessel traffic leaving Prigorodnoye and in La Perouse Strait. This topic was addressed briefly at Gland and Vancouver??, where the need for and feasibility of such an assessment was discussed. Some experts raised the issue of how an ALARP determination can be made if no quantification of risks has been attempted (response to SEIC Issues table and Marine Mammal Protection Plan 2005 prior to Gland).	SEIC	The MMO Programme of SEIC is based on the assumption that the collision risk is high, meaning that the effort is to minimize the risk is maximized. However, because a collision risk assessment is considered valuable SEIC has commissioned a study to assess the collision risk to WGWs (34). A model has been built and will be run using a variety of different scenarios. The model has been developed with input /advice from experts. A report is due in August 2005. This issue will continue to be addressed through modifications, as needed, to the Marine Mammal Protection Plan (8). (REFS: 8, 34). Work is ongoing. This issue will be addressed, in part, through definition of vessel corridors, speed restrictions, marine mammal observers, operating restrictions, etc. in the Marine Mammal Protection Plan 2005 - see below (issue 10). SEIC accepts that this issue will go to the WGWAP.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 9.2		Traffic & MMO	Increased vessel traffic around Aniva Bay and the Perouse Strait will increase the risk of collision, but this increased risk was not addressed in CEA.	SEIC	SEIC accepts that this issue will go to the WGWAP.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
B. Lenders	Vancouver I workshop report, issues table 9.3		Traffic & MMO	Not all proposed mitigation measures appear to be thought through or to make practical sense. Others have been adopted without any assessment of their likely effectiveness. It remains unclear which measures are actually intended to be implemented and which measures have been listed only for form's sake. For each mitigation measure in the MMAP: (i) efforts should made to determine what is actually meant by the proposed measure and whether it does, in fact, make sense; and (ii) SEIC must indicate whether the measure has been implemented or whether it seriously intends to implement the measure in the future. As an example of the above problems, the proposed zoning and speed limits in the MMAP states that vessels may only enter the Piltun feeding ground in emergency situations, but that if they do, the speed limit will be 7 knots by day or 5 knots by night. This seems nonsensical in that under emergency conditions, a vessel may not be able to limit its speed to 7 or 5 knots. Therefore, it raises the concern as to whether vessels might be allowed to enter the feeding grounds under other c	SEIC	Vessels are under mandatory reporting of any excursions outside of approved transit areas (8). SEIC will review all such incidents and assess the causes behind them. SEIC has clearly directed vessels that entry into the feeding area must be with pre-approval and only in emergency situations. Vessels are mandated to follow speed limits unless doing so presents an unacceptable hazard to human life (8). All mitigation measures have been assessed with respect to practical implementation and with a detailed review of what limited information is available on serious whale-vessel collisions (such as vessel speed and size). All marine mammal mitigation measures are outlined in the Marine Mammal Protection Plan (8). Vessel locations are tracked in real time using the Vessel Tracking System and unauthorized incursions in prohibited areas will be documented and addressed (32). (REFS: 8, 29b, 32). All incidents are assessed and modifications made to the mitigations as necessary. SEIC accepts that this issue will go to the WGWAP.		Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 30, p.14 (of IISG report)		Traffic & MMO	IISG emphasizes that downward adjustment of speed limits as a precaution in the portions of the navigation corridors approaching the PA-A and PA-B platforms deserves further consideration by SEIC management. We further note that the available (albeit inconclusive) evidence on ship strikes on large whales suggests that fatal strikes are less likely to occur when vessels are travelling at speeds less than 14 knots.	SEIC	SEIC has made the commitment to reduce vessel speed limits to 10 knots during the day and 7 knots at low visibility and at night in the section of the navigational corridors that approach PA-A and PA-B platforms. This requirement is updated in the Marine Mammal Protection Plan 2006.		Closed - implemented/resolved satisfactorily
C. IISG	Item 31, p.14 (of IISG report)		Traffic & MMO	SEIC to reconsider the adequacy of having a single MMO responsible for maintaining continuous watch during the entire roundtrip of the crew boat to the Molikpaq; there is a clear need for at least two MMOs to ensure consistently adequate vigilance.	SEIC	SEIC has committed to increase the number of MMOs from one to two on the crew change vessels that run from Kaigon to the platforms in the Piltun area. This requirement is updated in the Marine Mammal Protection Plan 2006.		Closed - implemented/resolved satisfactorily
C. IISG	Item 32, p.14 (of IISG report)		Traffic & MMO	Continuing effort of SEIC to minimize crew change vessel trips, e.g. by arranging for flexibility in shift management so that crew changes by helicopter can be postponed rather than cancelled in favour of boat usage.	SEIC	SEIC is aware of the high risk of collision for this specific vessel activity. ACTION: Investigate alternatives in order to minimize the number of crew changes using vessel traffic.	Ongoing	Open - in need of clarification/expansion
C. IISG	Item 33, p.15 (of IISG report)		Traffic & MMO	Steps to assess the efficacy and to improve the marine mammal observer program where necessary could include: 1) A review of the MMO training program to ensure observers receive all needed information in a realistic time frame	SEIC	Most marine mammal observers involved in the MMO program are professional biologists that have already gained quite extensive experience as MMOs from SEIC operations. SEIC provides its MMOs with all SEIC protection plans and procedures during a two-day training and they receive a briefing together with the SEIC vessel representative prior to mobilisation.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
C. IISG	Item 34, p.15-16 (of IISG report)		Traffic & MMO	Steps to assess the efficacy and to improve the marine mammal observer program where necessary could include: (2) Implementation of procedures to check the MMO data for mistakes, make corrections, and ensure that observers are fully informed of correct data collection procedures.	SEIC	A Microsoft Access database is used to minimize mistakes while entering the data. SEIC is currently in the process of hiring an MMO to be based in Yuzhno to focus on QAQC and the compilation of MMO data from the vessels on a daily basis. This person will thereby receive an overview of all marine mammal sightings and will be requested to provide feedback to the MMOs in the field with regard to WGWS sightings within the project area (This is additional to the exchange of info between MMOs in the field).		Closed - implemented/resolved satisfactorily
C. IISG	Item 35, p.16 (of IISG report)		Traffic & MMO	Steps to assess the efficacy and to improve the marine mammal observer program where necessary could include: (3) Broad assessment of MMO operations to ensure that the program is functioning as expected.	SEIC	The examples mentioned in the IISG report are part of the MMO Manual and are implemented by the dedicated MMO-coordinator. There is extensive communication between the SEIC MMO coordinator and MMOs on vessels. Prior to mobilisation, the MMO and the SEIC representative onboard receive a briefing on marine mammal issues, mitigation measures and communication protocols.		Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
C. IISG	Item 36, p.16 (of IISG report)		Traffic & MMO	All recommendations or instructions to the SEIC officer onboard and the captain should be documented to provide information to assess their compliance with protection measures. The command structure should be clarified and included as part of the training for observers, onboard SEIC officers, and for vessel captains involved in SEIC operations.	SEIC	In all instances where marine mammals are being observed, the MMO reports on daily reporting sheets whether mitigation measures were considered necessary. In instances where no mitigation measures were taken and yet the distance to the vessel was less than the safety distance, the rationale behind the decision must be noted. The command structure is set out in the MMO Manual and is communicated to all parties involved.		Closed - implemented/resolved satisfactorily
C. IISG	Item 37, p.16 (of IISG report)		Traffic & MMO	Observations of gray whales from vessels involved in SEIC operations should be communicated to all other vessels in the area to ensure they are alerted to the presence of the whales. This should be done routinely, but is especially important when visibility is reduced.	SEIC	Agree. This is part of the existing protocol and the importance of WGW sightings is repeated during training and prior to mobilisation both to the MMO and SEIC vessel representative.		Closed - implemented/resolved satisfactorily
C. IISG	Item 38, p.16 (of IISG report)		Traffic & MMO	It is recommended that daylight observer coverage be continuous during activities associated with construction of the pipelines from offshore to onshore south of the feeding ground.	SEIC	Agree. MMOs stationed on vessels involved in offshore pipeline construction and other construction activities observe continuously during daylight conditions.		Closed - implemented/resolved satisfactorily
D. WGWAP 1	WGWAP 1/023 (a)	WGWAP 1/3 - Section 12.1	Traffic & MMO	Concerning the issue of reducing collision risks associated with crew change vessels, the Panel notes some positive changes in the Sakhalin Energy approach. However, it believes that further work in this area is important and should be pursued. Therefore, it is recommend that: (a) Both crew change vessels have 2 MMOs onboard on a permanent basis, as recommended by the IISG, instead of 'whenever possible', as reported by Sakhalin Energy at this meeting;	SEIC	This was implemented in 2006 and is planned for 2007	Nov-07	Closed - superseded by a new recommendation
D. WGWAP 1	WGWAP 1/023 (b)	WGWAP 1/3 - Section 12.1	Traffic & MMO	Concerning the issue of reducing collision risks associated with crew change vessels, the Panel notes some positive changes in the Sakhalin Energy approach. However, it believes that further work in this area is important and should be pursued. Therefore, it is recommend that: (b) Further measures be taken to avoid deviations of crew change vessels from the prescribed route;	SEIC	SEIC has a procedure in place and follows up on all deviations.		Closed - implemented/resolved satisfactorily
D. WGWAP 1	WGWAP 1/023 (c)	WGWAP 1/3 - Section 12.1	Traffic & MMO	Concerning the issue of reducing collision risks associated with crew change vessels, the Panel notes some positive changes in the Sakhalin Energy approach. However, it believes that further work in this area is important and should be pursued. Therefore, it is recommend that: (c) Serious consideration continue to be given by Sakhalin Energy to the issue of collision risk associated with number and frequency of crew change vessel trips; a solution to this problem must be found.	SEIC	Helicopters will be primary crew change vehicle and will be used whenever the weather permits.		Closed - no longer relevant but had not been implemented satisfactorily at the time it became moot
D. WGWAP 1	WGWAP 1/024	WGWAP 1/3 - Section 12.1	Traffic & MMO	Taking into account previously raised concerns with regard to the effectiveness of the MMO programme, the Panel looks forward to reviewing details of the MMO training protocol to examine its effectiveness prior to the 2007 construction season.	SEIC	MMO training programme will be presented	Feb-07	Closed - implemented/resolved satisfactorily
D. WGWAP 1	WGWAP 1/025 (a)	WGWAP 1/3 - Section 12.1	Traffic & MMO	As a way of helping to assess the risk of ship-whale collisions during poor visibility conditions, it is recommended that, at a minimum, the following information be provided to the next meeting of the WGWAP: (a) Amount of MMO effort under conditions with visibility $\leq$ 1 km;	SEIC	These will be incorporated into MMO close-out report 2006. This will be made available to the WGWAP early in 2007.	Apr-07	Closed - superseded by a new recommendation

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
D. GWAP 1	GWAP 1/025 (b)	GWAP 1/3 - Section 12.1	Traffic & MMO	As a way of helping to assess the risk of ship-whale collisions during poor visibility conditions, it is recommended that, at a minimum, the following information be provided to the next meeting of the GWAP: (b) Number of crew change vessel trips conducted in conditions with visibility $\leq 1$ km or at night;	SEIC	These will be incorporated into MMO close-out report 2006. This will be made available to the GWAP early in 2007.	Apr-07	Closed - superseded by a new recommendation
D. GWAP 1	GWAP 1/025 (c)	GWAP 1/3 - Section 12.1	Traffic & MMO	As a way of helping to assess the risk of ship-whale collisions during poor visibility conditions, it is recommended that, at a minimum, the following information be provided to the next meeting of the GWAP: (c) Number of whales detected during poor weather conditions (e.g. visibility $\leq 1$ km, Beaufort sea state $\geq 3$ , or after sunset);	SEIC	These will be incorporated into MMO close-out report 2006. This will be made available to the GWAP early in 2007.	Apr-07	Closed - superseded by a new recommendation
D. GWAP 1	GWAP 1/025 (d)	GWAP 1/3 - Section 12.1	Traffic & MMO	As a way of helping to assess the risk of ship-whale collisions during poor visibility conditions, it is recommended that, at a minimum, the following information be provided to the next meeting of the GWAP: (d) Number of whales detected during good weather and good visibility conditions.	SEIC	These will be incorporated into MMO close-out report 2006. This will be made available to the GWAP early in 2007.	Apr-07	Closed - superseded by a new recommendation
D. GWAP 1	GWAP 1/026	GWAP 1/3 - Section 12.2	Traffic & MMO	The Panel recognises the effort invested by the company towards improving MMO effectiveness. Nevertheless, a meaningful evaluation of the MMO programme will be feasible only after a detailed report has been made available to the Panel on MMO observations and measures taken in response to them in the 2006 season. The Panel recommends that such a report be submitted for consideration at the next GWAP meeting and emphasises that the report must be more than a collation of observer data and should include appropriate analyses.	SEIC	The report will be presented to the panel by next meeting.		Closed - superseded by a new recommendation
D. GWAP 1	GWAP 1/027	GWAP 1/3 - Section 12.2	Traffic & MMO	Additionally, the Panel requests that Sakhalin Energy submit for review its protocol for allocating MMOs to the various vessels in the fleet.	SEIC	There is no formal assignment protocol. SEIC has a pool of trained MMO that are assigned to vessels as required.		Closed - implemented/resolved satisfactorily
D. GWAP 1	GWAP 1/028	GWAP 1/3 - Section 12.2	Traffic & MMO	Finally, the Panel recommends that Sakhalin Energy share its traffic rules, its scheme of vessel navigation corridors and its MMO programme plan with other oil and gas companies operating on the Sakhalin Shelf, regardless of whether those companies are obligated to implement such rules, protocols and programmes.	SEIC	SEIC encourages IUCN to provide this information to other operators with whom IUCN has contact. SEIC has shared this with ENL.		Closed - implemented/resolved satisfactorily
E. Vladivostok	GWAP/Vlad-04	GWAP 1/007	Traffic & MMO	The Panel recommends that information on day-by-day construction activities and locations for each vessel be provided as a document for the St. Petersburg GWAP meeting (per the SEIC response to GWAP 1/007). There should be at least three sources of such information – satellite-linked tracking data for each vessel, vessel logbooks, and MMO data (recorded at half-hourly intervals).	SEIC		15.04.07	Closed - superseded by a new recommendation
F. GWAP 2	GWAP 2/006	GWAP 2/3 Section 6.1	Traffic & MMO	The Panel recommends that as a matter of routine, IUCN and Sakhalin Energy ensure that the Panel is provided with relevant updated MMPP documents for review well in advance of each field season.	SEIC	MMPP will be provided.	15-Jun-07	Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
F. GWAP 2	GWAP 2/007	GWAP 2/3 Section 6.2	Traffic & MMO	The Panel recommends that MMOs are also placed on the crew change vessel operating between Nogliki and LUN-A at all times.	SEIC	The most extensive SEIC activities in Lunskeye were carried out in 2005-2006. The level of activities in 2007 is going to be much lower than in the previous years. Based on the Collision Risk Assessment the probability to encounter the whale in this area is very low. This was confirmed in 2005 when no sightings were recorded from 11 vessels in the area and in 2006 when 1 whale was sighted in 2000 hours of observations. Therefore, we consider not placing the MMO on these trips, and propose to give the MMO briefing to the crew of the boats.		Closed - superseded by a new recommendation
F. GWAP 2	GWAP 2/008	GWAP 2/3 Section 6.2	Traffic & MMO	The Panel recommends that no crew change vessel trips are conducted during the night (any instances where this policy is not followed should be documented with an explanation of the circumstances in the 2007 close-out report).	SEIC	The main crew change platform will be helicopter, with the crew change boats being the back up option. Crew change trips will be conducted during daylight, unless night trips are absolutely necessary for safety or other operational reasons. These occasions will be documented and included in the MMO closeout report.	30-Nov-07	Closed - implemented/resolved satisfactorily
F. GWAP 2	GWAP 2/009	GWAP 2/3 Section 6.3	Traffic & MMO	The Panel recommends that the MMO dataset, in conjunction with the company's other records of vessel operations, be analysed by Sakhalin Energy, with a view to evaluating each of the factors (specified in the report text) that contributes to overall effective coverage.	SEIC	In the 2006 MMO closeout report SEIC already conducted some analysis regarding effective coverage. However, SEIC will look into more detail to the factors specified in the current GWAP report and may seek the panel's advice on a detailed protocol of such analysis.	30-Sep-07	Closed - implemented/resolved satisfactorily
G. GWAP 3	GWAP 3/001	GWAP 3/3 Section 3.1	Traffic & MMO	The Panel <b>recommends</b> that as a minimum, Sakhalin Energy request general permission from the Russian Ministry of Natural Resources to collect small tissue samples from dead GWs for genetic analyses.	SEIC	SEIC will approach the Authorities.	Apr-08	Closed - implemented/resolved satisfactorily
G. GWAP 3	GWAP 3/002	GWAP 3/3 Section 3.2.3	Traffic & MMO	The Panel <b>recommends</b> that from now on at least the following data be collected by the MMO Programme: time and position of each start or change of vessel activity (including those when no MMO is on watch); visibility (including time and position when it changes); start and end time and position of each MMO watch period; time and position of each whale sighting.	SEIC	All the data listed are already part of the MMO protocol during daylight. In 2008 MMOs will be instructed to collect data on time and position of each change of vessel direction during nighttime. However, this requires that the records are available in the vessel's log book.	Jun-08	Open - in progress
G. GWAP 3	GWAP 3/003	GWAP 3/3 Section 3.2.3	Traffic & MMO	The Panel <b>requests</b> that after each season, summaries of the MMO data be presented to the Panel that show: the number of trips by operating support vessels; the proportion of each trip that occurs in poor visibility (e.g., darkness, fog); the proportion of each trip that observers were on watch; hours of observation; numbers and locations of sighted whales.	SEIC	To be presented at the Nov 2008 GWAP-5 or April 2009 GWAP-6.	Nov-08	Open - in progress
G. GWAP 3	GWAP 3/004	GWAP 3/3 Section 3.2.3	Traffic & MMO	The detection probability from vessels is an important factor in the effectiveness of mitigation measures for seismic surveys and the Panel <b>recommends</b> that the issue of estimating detection function probability should be addressed by the Seismic Survey Task Force.	Seismic Survey Task Force			Closed - implemented/resolved satisfactorily

Meeting	Reference	Cross-Reference	Topic	Recommendation	Party resp.	Response	Target completion date	Status
G. WGAP 3	WGAP 3/005	WGAP 3/3 Section 3.3	Traffic & MMO	The skewed distribution of MMO sightings from crew change vessels – the vast majority came from one of the three vessels – raised concern on the part of the Panel and requires further investigation. The Panel <b>requests</b> that SEIC analyzes this discrepancy and reports its findings at the next meeting.	SEIC	An analysis will be presented at the next WGAP meeting and included in the 2007 MMO Close-out Report		Closed - implemented/resolved satisfactorily
G. WGAP 3	WGAP 3/006	WGAP 3/3 Section 3.3	Traffic & MMO	The Panel <b>reiterates its previous recommendation</b> that MMOs should be placed on the crew change vessel operating between Nogliki and LUN-A at all times.	SEIC	SEIC will endeavour to place MMOs on crew change vessel operating between Nogliki and LUN-A at all times. The only limitation is the accommodation on the vessels		Closed - implemented/resolved satisfactorily
H. WGAP 4	WGAP 4/001	WGAP 4/4 - Section 5.2	Traffic & MMO	The Panel requests that SEIC provide clear explanations for Miss Sybil's inshore movements on 6 and 21 September, 1 and 13 October and 2, 3 and 5 November 2007.	SEIC	Explanations will be provided to the Panel.	Aug-08	Open - no action yet taken
H. WGAP 4	WGAP 4/002	WGAP 4/4 - Section 5.2	Traffic & MMO	The Panel <b>requests</b> that SEIC continue to document vessel deviations from the navigation corridors towards a WGW feeding area and make this information available in its annual MMO reports	SEIC	Known vessel deviations from the navigation corridors towards a WGW feeding area are recorded and will be included in annual MMO reports.		Open - no action yet taken
B. Lenders	Vancouver I workshop report, issues table 18.1 to 18.4		WGAP implementation	An independent advisory body is needed to review ongoing and future works, monitoring, mitigation, and research (written response by some experts to SEIC documentation prior to Gland Workshop). The advisory body should consider wider aspects of protection, including cumulative and range-wide impacts and management. It was agreed at Gland that the ToR for such a body be developed. The terms of reference for this independent advisory body must include mechanisms to address declines in the population even when they cannot be attributed directly to project activities. The terms of reference also must address issues related to composition of the body, timetable for establishment and operations, provision of resources to support the body, and agreement in principle for industry cooperation, including access to data and project sites. Need for oversight of observer programmes. Observer programmes require independent oversight or verification of compliance to ensure their effectiveness. It is feasible that such oversight/verification might be a function of the advisory body being planned to address long-term issues. These research needs should be incorporated into the advisory	SEIC - IUCN	SEIC supports the development of a cooperative review body that will in the short-term bring together representatives from SEIC and the scientific community at an annual meeting held under the auspices of the IUCN. Awaiting Terms of Reference for the advisory body. Authority levels, independence, power of enforcement are all key issues. SEIC will endeavour to progress the formation of the WGWAP with immediate effect.		Closed - implemented/resolved satisfactorily
B. Lenders	Vancouver I workshop report, issues table 19.1		WGAP implementation	In addition to the independent advisory body described above, there is an additional need for a long-term, comprehensive, international strategy for the recovery and conservation of the WGW. This strategy should incorporate oil and gas operations, but also other factors that threaten the long-term persistence of this population. Such an effort is particularly important for addressing the cumulative effects of all these risk factors. Because the oil and gas industry poses significant risks to the WGW population, it should provide significant, ongoing support for this comprehensive strategy. Resolution of this issue should include agreements in principle regarding provision of support for the comprehensive strategy and an outline of arrangements for developing and implementing it.	SEIC - IUCN	SEIC supports the development of a cooperative review body that will in the short-term bring together representatives from SEIC and the scientific community at an annual meeting held under the auspices of the IUCN. Over the long-term, SEIC supports the development of an International Forum for the Conservation of the Gray Whale that will bring together representatives from all of the range states as well as broad industry-wide participation. Terms of Reference for the advisory body are under development.	ongoing	Open - in progress